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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Story of the Week
Deservedly Honored Man
What Price Laughs?
Unbeatable Business Philosophy
Remember This Name: Sensemen
The Poor Type B Humans— Or Are They Really Poor?

Story of the Week

Radio station KGAE advertises on billboards to commuter husbands: "While you were away we spent many pleasant hours with your wife."

Deservedly Honored Man

Perhaps no man in the entire household refrigeration industry has been so honored as Sir Edward Hallstrom of Sydney, Australia.

England's Queen has knighted him for his cancer research. And Sweden's King has made him a Knight of that country for his archeological exploits.

Last week Sir Edward (who entertained "Dope" royally in Australia many years ago) was in Detroit as Australia's delegate to the International Cancer Conference; and he honored us with an office visit.

During the last dozen years, he informed us, he has manufactured and sold a million absorption-type refrigerators in Australia. That output is equivalent to one refrigerator for every 10 men, women, and children in the United States. An American counterpart would have had to manufacture more than 16,000,000 household refrigerators in a similar period to match him!

What Price Laughs?

Typographical errors frequently are amusing. But sometimes they have unfunny consequences.

Paul B. Reed, RSES educational director and contributor of the NEWS' column, "Refrigeration Problems and Their Solution," has sent us several newspaper clippings which illustrate this point. One refers to the fix a smalltown paper got into when it announced an ice cream social, and footnoted: "In case of rain it will be hell in the church basement."

In another upset, a local matron was described as "souring" instead of "pouring" at a tea. Result: the matron and two relatives canceled subscriptions.

Those reactions are miniscule compared to what happened when *El Caribe*, the Dominican

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Ashley Heads New ASRE Officers; Spotlight Air-Cooled Unit Problems

CINCINNATI—Installation of new officers, submission of a number of proposed revisions to ASRE standards, and a widely varied technical program marked the annual meeting of American Society of Refrigerating Engineers here June 4-6.

Carlyle M. Ashley, chief staff engineer for Carrier Corp., was installed as president of the engineering group. With more than 40 patents to his credit, the new ASRE president is a recognized authority in refrigeration and air conditioning.

Hermann F. Spoehrer, vice president, Sporlan Valve Co., was installed as first vice president. Cecil Boling, president, Bush Mfg. Co., is second vice president, and D. D. Wile, vice president, Refrigeration Engineering, Inc., is treasurer.

New directors installed included: John Engalitcheff, Jr., president, Baltimore Aircoil Co.; Everett Palmatier, director of research, Carrier Corp.; Robert G. Werden, industrial sales manager, York Corp.; Charles T. Hamilton, consulting engineer, Vancouver, B. C., Canada.

The sessions in the Air Conditioning Conference got involved mainly in the discussion of the problems of the application of air-cooled condensers, with the consensus being that the problems are ones that will have to be solved by refrigeration "know-how." (See summary on Air Conditioning Conference at end of this story.)

At the general assembly opening the convention, the following were submitted to the membership for approval:

Proposed revisions to Standard 18, "Methods of Rating and

(Concluded on Page 6, Col. 1)

Israel Heads Committee For Industry Show, Nov. 18-21, 1957

WASHINGTON, D. C.—Rollin H. Israel of the Virginia Smelting Co. has been appointed chairman of the 10th Exposition Committee of the Air Conditioning and Refrigeration Industry, the Air-Conditioning and Refrigeration Institute announced recently.

The exposition will be held at the Navy Pier, Chicago, from Nov. 18 through 21, 1957. Israel

(Concluded on Page 4, Col. 4)

Dow Denies Plans To Make Refrigerants

MIDLAND, Mich. — Dow Chemical Co. has denied that it has any intention of producing fluorinated hydrocarbon refrigerants (the "Freon" family) either in the U. S. or Canada.

The denial came after a Canadian financial publication stated that "preliminary engineering" was under way by Dow Chemical of Canada for new plants which would produce, among other things, fluorinated hydrocarbons for refrigeration and aerosol applications.

Oldsmobile Ups Conditioner Installations 50% In 8 Mos.

LANSING, Mich. — Factory installations of air conditioners on Oldsmobiles has increased 50% in the eight months ended May 31 and dealer installations in the same period have more than doubled, J. F. Wolfram, general manager of the Oldsmobile Div., General Motors Corp., announced recently.

He said that 6% of all Oldsmobiles produced in that time were air conditioned, as compared with 3.7% for the same period last year.

The factory installed 18,470 air conditioners this year as compared with 12,212 last year. Dealers installed 3,320 as compared with 1,637 last year.

How Goes Building

Gov't Plans Steps To Help Builders Reach Goal of 1,300,000 Housing Starts

WASHINGTON, D. C.—In a move to help ease the mortgage money market, the House banking committee has recently approved a bill that would give the Federal National Mortgage Association power to make standby builder commitments.

The bill would also reduce the requirement that a person selling a mortgage to the agency must buy some of its stock, thus cutting the cost of doing business with "Fannie Mae" as the agency is called.

Under its standby commitments, Fannie Mae could guarantee builders that it would buy government-backed mortgages at a specified price at some future date.

May Housing Hits $3.7 Billion To Equal Figure for Last Year

WASHINGTON, D. C.—Equalling the high for May reached last year, $3.7 billion was spent on new construction in this country last month, the Commerce and Labor departments announced recently.

At the same time, the F. W. Dodge Corp. reported that contracts for new home construction east of the Rocky Mountains during May reached a new high for any month at $1,129 million. They were 12% above last year.

A Dodge official commented, however, that the new high was reached through an increase in the size and cost of houses, as the actual number was about the same as last year.

May contract awards for all types of construction totaled $2,479 million, which was second only to May, 1951, when nearly $1 billion was spent on atomic energy heavy engineering contracts.

June Heat Wave Should Assure Record Industry Sales Year

Some Models Are Scarce; Shortage of Qualified Installers Shows Again

DETROIT, June 14—A heat wave that was breaking records for June from the West Coast to the East Coast, and which showed signs of lasting a week or longer, was giving a "push" to retail sales of air conditioning that seemed certain to make 1956 a record-breaking year.

Sales had generally been reported ahead of last year before the heat wave started, but with it coming early in June (last year the real hot weather didn't hit until July) the chances of a real big sales year were really heightened.

Reports of sales activities were full of such quotes as "we're out of a couple of room unit models already" (from a manufacturer); "a sudden rush of buying cleaned us out of air conditioners in a couple of days this week" (a Chicago department store); "the phone's ringing off the hook—for everything, room units, commercial package jobs, residential systems" (a distributor handling all types of equipment); "many of our distributors are asking us to move up scheduled delivery dates 15 days" (a major manufacturer).

"We've just been going crazy since the heat struck," chortled the room air conditioner buyer of Detroit's largest department store here as the temperatures soared for the fifth straight day in the first "heat wave" of the year.

"We had our year in in May and sales are getting better," he commented.

He said supplies were getting low, but he was well protected on major brands.

Another department store buyer however, noted that the heat has increased room unit sales "substantially," but said sales to date were about even with last year. He said he had

(Concluded on Back Page, Col. 1)

'No Bid Shopping' Bill On Govt. Contracts Passed by House Unit

WASHINGTON, D. C.—A bill to eliminate bid shopping on government contracts has been passed by the House judiciary committee. The measure has already been passed by the Senate.

The bill would require a general contractor to name in his bid for a government contract the subcontracting firms he intends to use. He will be permitted to change subcontractors only with government approval. Any savings effected by the change would go to the government and not the general contractor.

The bill is backed by small contractors and opposed by large contractors and the Administration.

Congress To Decide On 'Piecemeal' Cooling Of Federal Courts

WASHINGTON, D. C. — The fate of a proposed $1,500,000 fund for installation of room or packaged air conditioners in certain Federal courtrooms and offices will be decided soon by Congress.

The House refused to approve the expenditure but it was restored by the Senate despite opposition by the General Services Administration.

The judiciary wants Congress to approve the fund for air conditioning of courtrooms and offices in places where extreme heat reduces judicial efficiency. However, the GSA is opposed to further court air conditioning on a room-by-room basis, favoring instead complete cooling of buildings.

The bill (H. R. 10721) involving the $1,500,000 fund is

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Many Problems Must Be Solved Before It Can Become Practical, Competitive Home Heating Method

DuPont Reduces 'Freon' Tank-Car, Truck Prices In 7 Far West States

WILMINGTON, Del. — Du Pont has reduced tank-truck and tank-car prices of the most widely used "Freon" refrigerants and propellents in the seven western states, the company announced. The reduction is seven-tenths of a cent per pound.

New prices, effective with shipments on May 26, make the bulk price of "Freon-12" dichlorodifluoromethane 26.4 cents per pound, and "Freon-11" trichloromonofluoromethane, 22.4 cents per pound. Both prices are f.o.b. East Chicago, Ind., minimum transportation allowed.

The reduction also applies to all propellent solutions of "Freon-11" and "Freon-12."

Tank-car price of a typical 50-50 solution is reduced to 22.1 cents per pound on shipments to Arizona, California, Idaho, Nevada, Oregon, Utah, and Washington.

"By this move, the differential between Du Pont's delivered bulk propellent prices in the seven western states and the rest of the nation is reduced from $.015 to $.008 per pound to encourage the aerosol industry to use West Coast loaders for their western requirements," the announcement said.

Products affected by the price reduction will be manufactured, beginning in September, 1956, at a new Du Pont plant nearing completion at Antioch, Calif.

Jordon Names Robins

PHILADELPHIA — Appointment of Philip L. Robins as plant superintendent and production manager of Jordon Refrigerator Co., Inc. is announced by William Moiselle, vice president and general manager.

Gibson To Introduce Heat Pump June 18 At Merchandise Mart

GREENVILLE, Mich. — Gibson Refrigerator Co. has announced that it will introduce a heat pump in its new space (11-102) in the Merchandise Mart in Chicago during the summer market.

The company said the unit "will be in a special glass case for the inspection of all who are interested in seeing the latest in home comfort."

Grand opening of Gibson's new Mart space is planned for 12:30 p.m. on Monday, June 18. The display room will be officially opened by a ribbon cutting ceremony by Jimmy Durante and Eddie Jackson, currently appearing at the Chez Paree in Chicago, it was explained.

Supreme Court Bars Mfr.-Owned Outlets, Competing Wholesalers from Price Fixing

WASHINGTON, D. C.—Price fixing agreements between manufacturer-owned wholesale houses and independent wholesalers with whom they compete were recently ruled by the Supreme Court as illegal under Federal "fair trade" laws.

In a six to three decision the high court overturned a lower court ruling which said such agreements between McKesson & Robbins, Inc., big wholesale drug firm, and independent wholesalers with whom it competes are exempt from anti-trust charges under the fair trade acts, according to a report in the Wall Street Journal.

Congress "made as plain as words can make it" that the fair trade laws, while they allow resale price maintenance, did not extend to price fixing agreements between corporations, persons, or companies in competition with each other, the high tribunal decided.

Holding that McKesson's agreements came under this prohibition by Congress, the Supreme Court noted that both the Government and McKesson in this case advanced economic arguments which could "reasonably have caused Congress to support their respective positions."

But the justices said "We do not need concern ourselves with such speculation. Congress has marked the limitations beyond which price fixing cannot go. We are not only bound by those limitations but we are bound to construe them strictly, since resale price maintenance is a privilege restrictive of a free economy."

Editor's note: Recently the House of Representatives passed 393 to 3 and sent to the Senate a bill to curtail sharply the use of "good faith" meeting of competition as a defense against charges of illegal price discriminations.

House Unit Praises Inside Door Openers For Refrigerators

WASHINGTON, D. C.—Progress in the industry's efforts to produce a special lock for refrigerators that children could open from the inside was reported to Congress recently by industry members.

Along with the progress report, however, came warnings that publicity should continue to emphasize the danger inherent in the 60 million refrigerators that now have no safety devices.

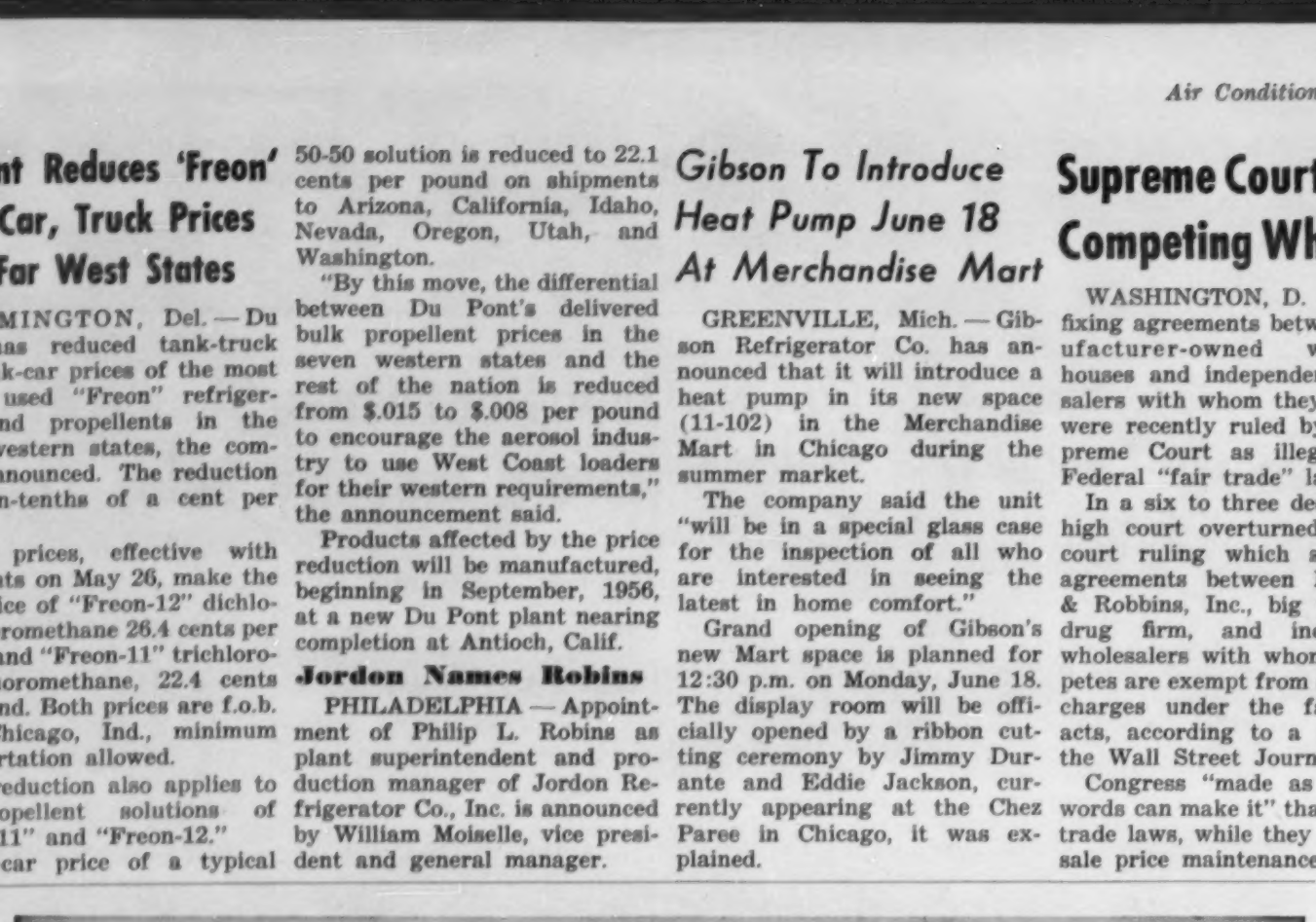
The House interstate commerce subcommittee hearing testimony on the problem praised Admiral Corp. and General Electric Co. for promoting new household refrigerators with new lock mechanisms designed to reduce the danger of trapping children inside.

However, spokesmen for the refrigerator industry and the National Bureau of Standards, who for nearly a year have been working on the "death trap" problem, advised the Congressmen that no final industry-wide agreement on latches can be reached until the conclusion of experiments to determine how a child behaves when trapped in a sealed, dark place.

Warning against any promotion of "child-safe" refrigerators at this time, Roy Buchanan of Westinghouse Corp. said such promotion might lead to experimentation on the part of children, which could easily treble the present death rate from this cause.

"The best thing to do," he asserted, "is to continue emphasizing the danger."

The subcommittee is considering a bill (HR 2181) that would require all refrigerators in interstate commerce to be "equipped with a door-closing device which enables the door to be opened easily from inside."



KRAMER

UNICON FOR SUPERMARKETS

Serves 14 Compressors
Winter and Summer
WITHOUT ANY WATER*

Photographs of UNICON installation at Trimborn's Supermarket, Hales Corner, Wisconsin

Installed by Real Refrigeration Sales and Service, Milwaukee, Wisconsin

Units furnished by Wisconsin Refrigeration Supply Company, Milwaukee, Wisconsin

WRITE FOR BULLETIN U-291

**UNICON is a Remote-Type Air-Cooled Condenser*

KRAMER TRENTON CO. • Trenton 5, N.J.

For more information about products advertised on this page use Information Center, page 32.

NEW KELVINATOR AUTOMATIC DISHWASHER

It's here, the new Kelvinator Automatic Dishwasher. It's loaded with features that make demonstrating and selling easier. It has been enthusiastically approved in thorough field testing. Yes, there is another great new profit opportunity in big ticket business now available to Kelvinator dealers. Get full information today on this newest in the complete line of Kelvinator appliances, it's another appliance with more of the stuff that sales are made of.

COMPARE THE FULL KELVINATOR LINE WITH ANY LINE IN THE INDUSTRY!

FABULOUS FOODARAMA REFRIGERATORS + FREEZERS AUTOMATIC WASHERS + SEMI-AUTO WASHERS WRINGER WASHERS + DRYERS IRONERS + DISHWASHERS ELECTRIC RANGES + KITCHEN CABINETS SINKS + ROOM AIR CONDITIONERS WASTE DISPOSERS + WATER HEATERS DEHUMIDIFIERS

PLUS THE BUILT-IN FOODARAMA, BUILT-IN OVENS, BUILT-IN SURFACE UNITS AND NOW THE AUTOMATIC DISHWASHER, BUILT-IN *OR* FREE STANDING

Kelvinator

Division of American Motors Corp., Detroit 32, Mich.

American Motors Means More for Americans

VISIT KELVINATOR DURING THE MARKET AT SPACE 1124-5, MERCHANDISE MART

For more information about products advertised on this page use Information Center, page 32.

Federal Court Cooling--

(Concluded from Page 1, Col. 4)

scheduled to be considered shortly by a Senate-House conference committee. If the fund is disapproved, the judges probably will get no relief from the summer heat because the bill does not provide for financing of complete building air conditioning.

McElroy In Topeka Names Vance Elder

TOPEKA, Kan.—McElroy Refrigeration & Heating has announced the appointment of Vance N. Elder of Kansas City as sales engineer.

He has had past experience in the air conditioning distributing business with Westinghouse and General Electric. For the past two years Elder has been district factory representative for Worthington Corp., with Topeka in his territory.

Installers 'Hammer Lightly' In Court Air Conditioning

LITTLE ROCK, Ark. — The installation of air conditioning in the Pulaski County Courthouse quietly continued recently although a "no noise" order slowed down the pace.

Pulaski Circuit Judge William J. Kirby ordered workmen on the project to "stop hammering" because the noise interfered with a murder trial then in progress.

Meanwhile, Fagan Air Conditioning Co. employes were instructed by the firm to "hammer lightly" while the trial is in progress.

Floyd Sharp, Fagan official, said that all sheet metal work was being done after the courthouse closed each working day.

Dealers Reserve Funds Not Income, Court Rules

NEW YORK CITY—In a decision running counter to Tax Court rulings in similar cases—mainly involving auto dealers, an appeals court has ruled that funds held in a "dealer's reserve" are not income, it was recently reported.

When a dealer making sales on credit sells its customers' notes to a finance company, the agreement ordinarily provides for the finance company to hold back part of the amount of each note chiefly against possible losses. Generally, the Tax Court has ruled that the full amount of the sales price, including the amounts withheld, represented income.

However, the Fourth Circuit Court held that a trailer dealer couldn't count on such a reserve as income because the fund was subject to payments on the notes.

The court said that due to this contingent liability, the amount the dealer was entitled to receive, when the reserve is less than a specified level, could not be ascertained for tax purposes.

ARI Exposition--

(Concluded from Page 1, Col. 2)

expects it to be the biggest ever held by the industry.

Other members of the exposition committee are: John K. Barnes of Carrier Corp.; Rudy Berg of Copeland Refrigeration Corp.; Herman M. Goldberg of Standard Refrigeration Co.; J. W. Krall of McCray Refrigerator Co., Inc.; D. C. McSorley of E. I. du Pont de Nemours & Co., Inc., W. A. Siegfried of Superior Valve & Fittings Co.; and George E. Mills, show director of ARI.

Several Plans Afoot To Aid Home Building, HHFA Chief States

WASHINGTON, D. C. — The government has several steps under consideration to aid the home building industry reach its goal of 1,300,000 starts this year, Albert M. Cole, administrator of the Housing & Home Finance Agency, declared recently. However, he didn't say what they were.

He predicted that the competition for money would soon slacken and more would be available for home mortgages. He also asserted that the curve of housing starts, admittedly below schedule so far, would be up from now on.

He pointed out that several government agencies, not just the Federal Reserve Board, have the power to help the mortgage market.

Cabins Air Conditioned In Utah National Parks

CEDAR CITY, Utah—Visitors to southern Utah national parks can relax this summer in modernized air conditioned accommodations, it was reported here.

All cabin sleeping accommodations in Zion National Park have been air conditioned in the latest improvement program, W. P. Rogers, Utah Parks manager, said

Heavy advance registration is reported by the parks.

Stephen G. Swisher, Jr. Dies; Was Trane Sales Engineer

MILWAUKEE — Stephen G. Swisher, Jr., a sales engineer here for Trane Co., died recently at Columbia hospital where he had been under treatment for several days for a stomach ailment. He was 61.

Swisher came to Milwaukee in 1921. In 1933, he and Lester W. Hessler formed a partnership and obtained the Wisconsin franchise of Trane.

Bush, Heat-X Name Vener In San Antonio Area

WEST HARTFORD, Conn.—Bush Mfg. Co. here and Heat-X, Inc., Brewster, N. Y., have announced appointment of Alvin S. Vener as a sales engineer in the San Antonio, Texas area.

A. S. Vener

A graduate of Texas university with a B.S. degree in chemical engineering, he was formerly associated with Coolidge-Locher Co., Corpus Christi, Texas, air conditioning contractor, as a sales engineer.

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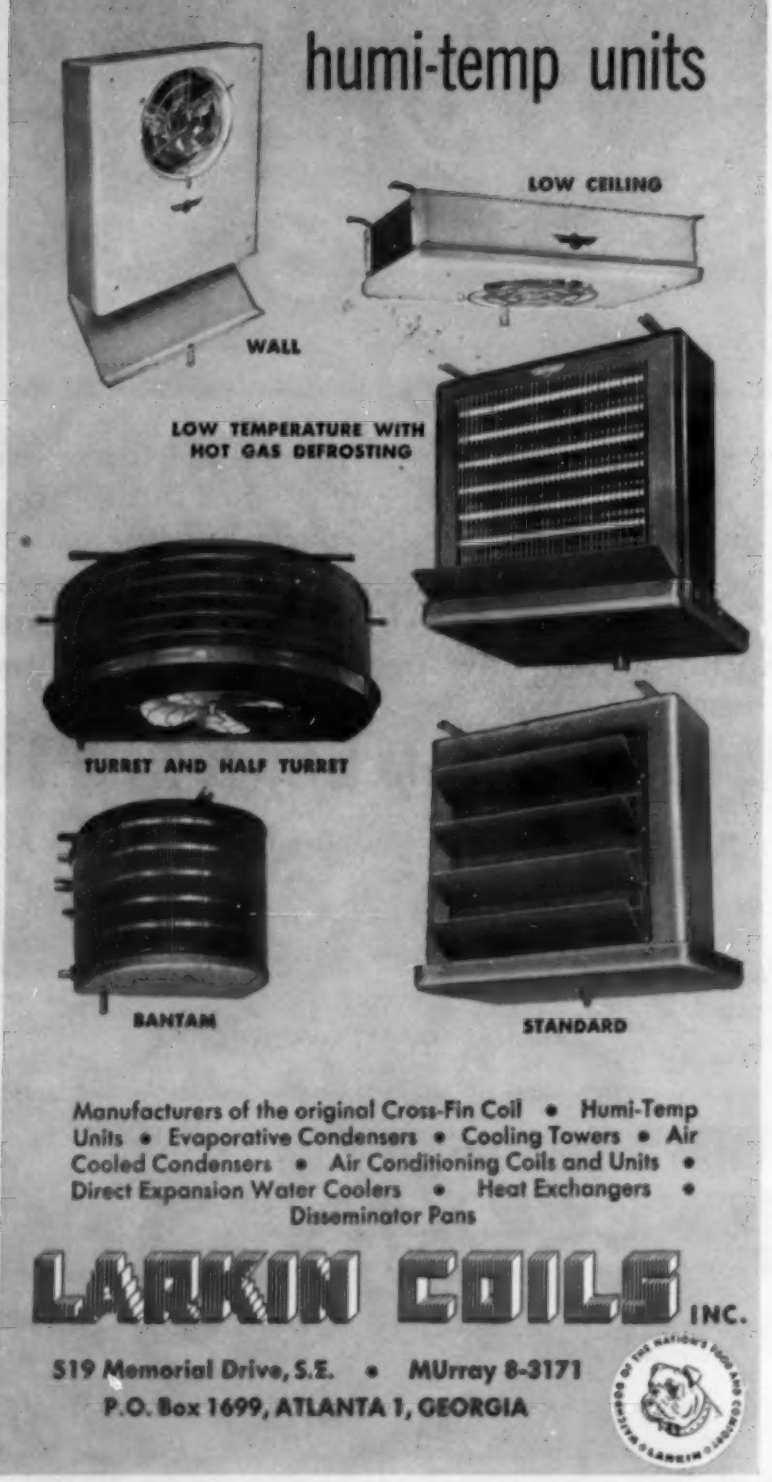

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Evaporative Condensers • Cooling Towers • Air Cooled Condensers • Air Conditioning Coils and Units • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans

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519 Memorial Drive, S.E. • MUrray 8-3171
P.O. Box 1699, ATLANTA 1, GEORGIA

A Dropped Conditioner or Injured Man can cost you more than a

HYKER WALKS UPSTAIRS— YOU DON'T DRAG IT!
910 W. Lycoming • Phila. 40, Pa.

For more information about products advertised on this page use Information Center, page 32.

Los Angeles Area RACCA Calls for Contractors To Train New Journeymen

LOS ANGELES — In the greater Los Angeles area there are fewer than one apprentice for every 10 journeymen in the refrigeration and air conditioning installation and service trade.

Henry B. Ely, executive secretary of the Refrigeration and Air Conditioning Contractors Association of Southern California, Inc., pointed out this "inadequate supply" of journeymen in the area and urged local contractors to hire more apprentices.

He noted that this shortage results in recruiting journeymen from other fields who do not have the background to enable them to do the work.

"The Joint Apprenticeship Committee has a waiting list of applicants for training who have passed the aptitude test, been interviewed by representatives of labor and management, and are waiting to enter the refrigeration industry," he declared in his June bulletin to members. "But nobody will employ them.

"The shortage of qualified journeymen is an emergency and will remain one until contractors make it part of their business to train more," he added.

Ely said that there were about 70 apprentices now under supervision of the Joint Apprenticeship Committee and more than 700 members in the Refrigeration Fitters branch of Local 250.

He pointed out to contractors that the committee has ruled that a journeyman does not have to be physically present at all times while the apprentice is working.

"It is the rule of the Joint Apprenticeship Committee that the apprentice must be under the supervision of a journeyman," he explained in the bulletin, "but if supervision is maintained the apprentice is not a child who cannot be trusted out of sight at any time.

"Thus one journeyman may properly supervise two apprentices on a particular job."

Buffalo Forge Orders Set 80-Year Record

BUFFALO — Orders booked by Buffalo Forge Co. during the six months ended May 31 were the highest of any six-month period in the company's 80-year history.

This was disclosed by Sales Vice President Charles C. Cheyney at a three-day sales meeting of the company's Ventilating & Air Conditioning Div. in Hotel Statler. Sales figures were not revealed.

"Shipments during the same period have far exceeded any similar six-month period," Cheyney declared.

The new six-month sales records were chalked up for air conditioning equipment, fans, machine tools, and pumps.

This high rate of operations has also been reflected in employment in the Buffalo Forge plant here where the two-shift work force of 1,500 to 1,600 is now at the highest level in company history.

Housing Chairman Decries St. Louis Heat, Asks To Air Condition New Public Units

ST. LOUIS — Because "you can't live in St. Louis in summer without air conditioning," Arthur A. Blumeyer, chairman of the Public Housing Authority, recently recommended installation of air conditioning units in new public housing apartments to be built by the authority.

Blumeyer made this recommendation to a "comfortable audience" at a regional conference of the National Association of Housing and Redevelopment Officials meeting in the air conditioned ballroom of a local hotel.

Temperature outdoors was 82° as he spoke.

Air conditioning public housing units on a mass basis may save money, Blumeyer said. He indicated apartments could be cooled for as low as $125.

"Each balcony for a family living in the John J. Coachran apartments cost $300," he pointed out.

Lone Star Gas Co. Requests Lower Rates For Summer Cooling

DALLAS — To encourage greater use of gas-operated air conditioning equipment, the Lone Star Gas Co. has recently requested permission from the city to charge a lower summer rate to air conditioning users, both residential and commercial.

L. A. Bickel, assistant general manager for the utility, said, "It will help solve a dire need of the company to sell gas in volume during the summer months when such a large percentage of its facilities are not being adequately used."

The special rate would apply only from June through October. The utility would charge residential customers the regular rate for the first 8,000 cu. ft. of gas ($5.98) and 48 cents for each 1,000 cu. ft. over 8,000. Commercial users would pay 48 cents per 1,000 cu. ft. for all gas used for air conditioning and straight commercial rates for other uses.

Only 850 customers would be affected immediately.

1906

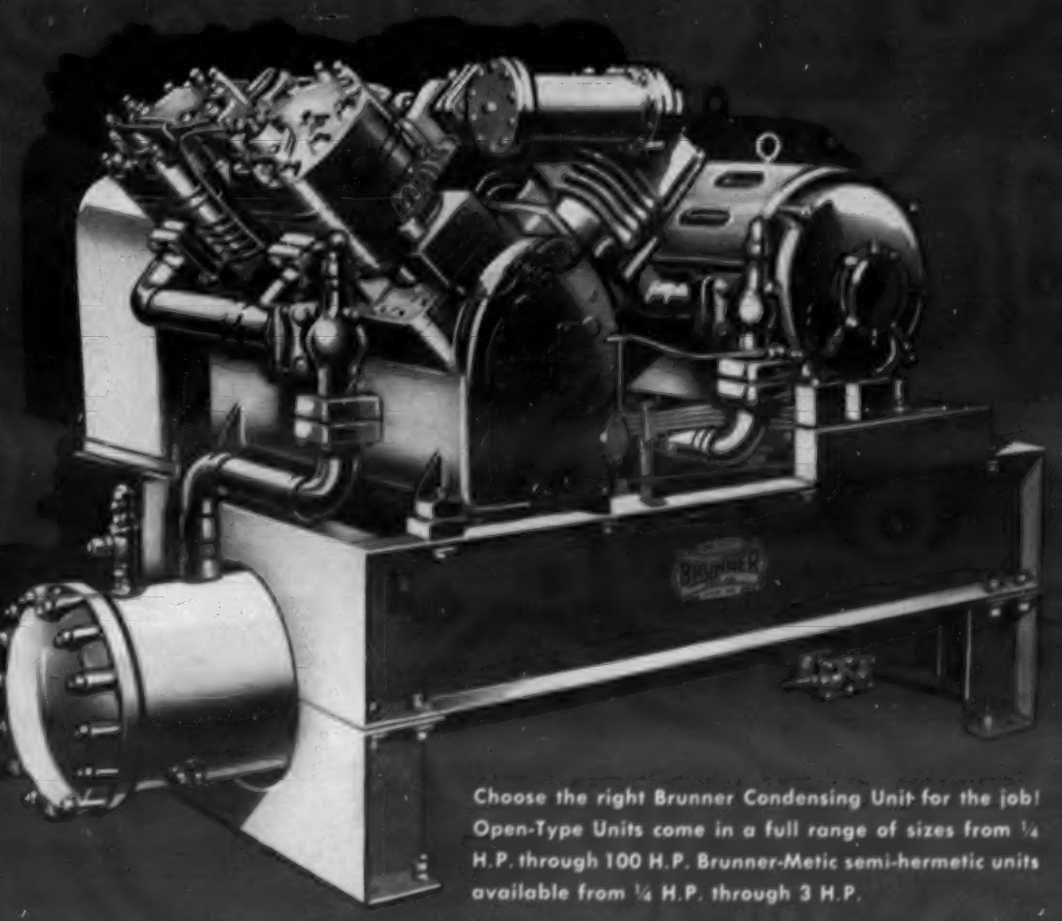
Top engineering of the times! The horse-drawn fire engine brought thrills to young and old alike in 1906 . . . the year when the first *Brunner-engineered* product became available.

TODAY

Wherever refrigeration is needed, there's a BRUNNER-ENGINEERED Condensing Unit that's just right for the job.

BRUNNER MANUFACTURING COMPANY, UTICA, N. Y.
THE BRUNNER CO., GAINESVILLE, GA.
IN CANADA: BRUNNER CORP. (CANADA) LTD., TORONTO, ONTARIO

50th Anniversary BRUNNER SINCE 1906 PROVEN QUALITY DEPENDABLES



Choose the right Brunner Condensing Unit for the job! Open-Type Units come in a full range of sizes from ¼ H.P. through 100 H.P. Brunner-Metic semi-hermetic units available from ¼ H.P. through 3 H.P.

New Processes, Methods Outlined to ASRE

(Continued from Page 1)

Testing Self-Contained Mechanically Refrigerated Drinking Water Coolers."

Proposed revisions to Standard 29-54, "Methods of Rating and Testing Ice Makers."

Proposed Revisions to Standard 26-R (ASA B59.1-1950), "Recommended Practice for Mechanical Refrigeration Installations on Shipboard."

Proposed Standard 35—Part A, "Method of Testing Desiccants for Refrigerant Drying," and Part B, "Methods of Rating and Testing High Side Liquid Line Driers."

The technical sessions included discussions of new products, processes, methods, and research projects designed to speed the industry's progress.

New Moisture Analyzer

A new instrument for the moisture analysis of "Freon" fluorinated hydrocarbon refrigerants was described by E. S. Taylor, Engineering Dept., E. I. du Pont de Nemours & Co., Inc.

Taylor said that this novel and inexpensive portable electrolytic water analyzer is as precise and accurate as any other method for moisture analysis of "Freon-12." It operates continuously and automatically either in the plant on the process stream or on discrete samples. Costing only $500, it is foolproof and gives rapid results, Taylor stated.

A heat pump that will work efficiently at low temperatures without the need for supplementary heating was described by Robert G. Werden, industrial sales manager, York Corp.

Two-Stage Heat Pump

With the substitution of two-stage compression for single-stage compression, considerable additional heating capacity is made available, thereby eliminating the need of the supplementary electric strip heaters, Werden said.

"And the compound compression principle materially reduces the required power input. Hence, the over-all advantages of more heat output, higher coefficients of performance, and the elimination of electric strip heaters opens up a much wider market for the air source heat pump," Werden stated.

Because of their unique application requirements, motors for hermetic compressors have variations from conventional motor design, related Robert F. Munier, consulting engineer for The Emerson Electric Mfg. Co.

Motor Design for Hermetics

Basic relationships among voltage, current, and magnetic flux determine the proportions of the various sections of the magnetic structure and of the slot areas of laminations for motors, he stated.

"The most significant of these requirements in their effects on motor design are the need for carrying sustained high overloads, the necessity of a low temperature rise rate under locked rotor conditions, the necessity of using more and thicker insulation pieces in the stator slots, the importance of high rotor inertia in some compressor designs, the requirements for a large diameter rotor counterbore, and the need for large vent hold area through the rotor."

Atomic Food Preserver

A new process in which high gamma radiation is combined with refrigeration for increasing the storage life of cooked meats, blanched vegetables, and other foods packaged in plastic bags was described by L. E. Brownell, supervisor, Fission Products Laboratory, University of Michigan.

Loss due to spoilage of fresh meats and produce could be eliminated if retail sales were made within a few weeks, Brownell said. Commercial development of the process probably would greatly increase use of refrigeration both in commercial handling of food and storage in the home, he continued.

"Housewives might use an additional refrigerator solely for storage of foods kept for 2 or 3 months or longer. Foods could be stored at 40° F. cheaper than at home freezer temperatures, and the thawing waiting period would be eliminated."

The paper "Turbulent Flow of Air Through Capillary Tubes" by F. G. Smith, The American Brass Co., presented details for the development of a practical method whereby the inside diameter of capillary tubes can be quite accurately estimated from air flow capacity determined under standard conditions as per ASRE Standard 28-56.

Galvanic corrosion effect can be minimized in the use of dissimilar metals in refrigeration and air conditioning equipment, by selecting proper methods and materials, stated J. F. Mason, Jr., corrosion engineer for the International Nickel Co., Inc.

Mason pointed out the essential principles underlying the problem and the practical methods that have been adopted to prevent such corrosion. The most effective way for avoiding galvanic corrosion is to select materials which, when coupled, show no strong tendency to produce galvanic corrosion, he stated.

Handling Frozen Meats

The Frozen Food Conference brought out the following highlights:

"Frozen Meats," discussion led by Clarence K. Wiesman, manager, Development Dept., Research Div., Armour & Co.

Many factors influence the acceptability of frozen meats. The following rules should be observed for the control of these factors: (1) The product should be held at 0° to 10° F. and preferably lower. (2) Minimize the fluctuations in the temperature of storage. (3) Avoid thawing and refreezing. (4) Educate the consumer as to proper

(Concluded on next page)

New ASRE Officers

C. M. ASHLEY
President

H. F. SPOEHRER
1st Vice Pres.

D. D. WILE
Treasurer

CECIL BOLING
2nd Vice Pres.

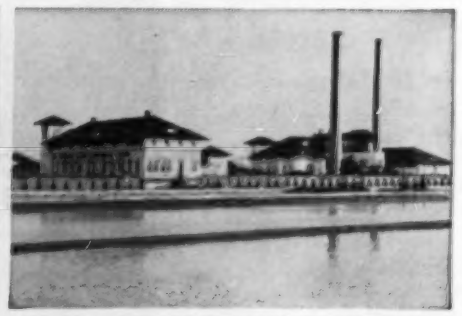
The challenge of integrity

A reputation for integrity—daily challenged and daily put to test—is established only through years of proven performance. Pennsalt's 106-year history of supplying top-quality products and service to industries depending upon close control of quality has met the challenge and established the reputation.

On the opposite page are details about Pennsalt's new ISOTRONS—the latest word in fluorinated refrigerants. The air-conditioning and refrigeration industries can depend on the integrity of Pennsalt to stand behind the ISOTRONS for quality, uniformity, performance, and value.

PETROLEUM REFINING calls for the utmost precision in raw-materials supply and processing. Pennsalt chemicals meet industry's rigid standards of purity & uniformity.

HIGH-ALTITUDE FLIGHT relies on Pennsalt fluorine and chlorine trifluoride to provide the exact oxidizing power for blazing rocket fuels.



HUMAN LIVES AND HEALTH depend on the purity of drinking water. Municipal water systems throughout the country use Pennsalt chlorine for purification.

For more information about products advertised on this page use Information Center, page 32.

ASRE Sessions--

(Concluded from preceding page)

preparation and storage of frozen foods in the home.

"Frozen Bakery Products" discussion led by Niles H. Walker, director of Product Control and Development, Arnold Bakers, Inc.

We have frozen and distributed more than 8 million lbs. of the rich formula firm type breads and soft rolls over the last four years. Freezing times and storage temperatures are critical if staling is to be retarded. Fluctuation in the storage temperature at 0° F. must be avoided as far as possible.

Frozen Fish Problems

"Frozen Sea Foods" discussion led by Charles Butler, chief, Technology Section, Fish & Wildlife Service, Department of Interior:

The technical know-how in the proper handling of sea foods is already well known. Improper handling, storage, and transportation is mainly because (1) The information is not known to the individual concerned; (2) The misconception is widely held that if fishery products are solidly frozen (example, 20° F.) they are fully protected.

"Frozen Fruits and Vegetables" discussion led by K. G. Dykstra, director of Laboratories, Birdseye Div., General Foods Corp.

Birdseye has made an exhaustive survey of the handling of frozen foods throughout the distribution system. This was done with an experienced three-man team who collected actual on-the-spot data to find out what actually does happen to frozen food while it is being handled through warehouses, order assembly rooms, and retail stores. Problems and weaknesses in the distribution setup were uncovered.

Which Is Best—Central Plant or Package Units?

The latest developments and problems in unitary air conditioning equipment and air-cooled condensing equipment were major topics at the Air Conditioning Conference.

In a discussion of "Which Is Best . . . Packaged Equipment or Central Plants for Air Conditioning the Larger Buildings," F. C. Wood, district manager for York Corp.'s industrial division in Atlanta, made the following points:

The packaged system has the economic advantage of adaptability to a "step program" of conditioning and provides maximum continuity of capacity in the face of partial shutdown for repairs. It generally can be more quickly installed, initial cost is usually lower, ducts are smaller hence less conspicuous, and less auxiliary horsepower is required.

The central plant by deliberate design, said Wood, is better able to produce the ultimate in comfort, provide better air filtering, and operates at a lower noise level. The central plant probably provides more comfortable winter heating, is more flexible in adaptation to new buildings, has longer useful life, less and easier maintenance, simple and less disturbing-to-occupants operating supervision.

In summation, said the discusser, the central plant is probably best applicable for new buildings above 100 to 150 tons capacity, or existing buildings where possible income justifies a long-term investment, for year-round air conditioning, and for more permanent type of installation. The packaged equipment system is best applicable for buildings of medium tonnage, for step-program air conditioning where equipment is owned by tenant on short lease, and where it is physically the most practical system.

The discussion of "New Field Application Problems of Air-Cooled Condensing Equipment" was led by M. D. Irwin, manager, "Weathermaker" product engineering department, Carrier Corp., and the following points brought out:

Refrigeration Know-How Needed In Air Cooled

No matter how the air-cooled equipment is installed, the packaged air conditioning dealer finds himself to a degree in the applied refrigeration field. It is the responsibility of the design engineer and the application and service engineer to do as much of the pre-planning as is possible, so that this equipment can be easily and safely applied and installed so that maximum user satisfaction will result.

Among the principal problems are (1) handling of refrigerant lines; (2) control of head pressure, both under high outside air conditions and thus required for its load limiting aspects, and under low outside air conditions with an unrelated internal load, being required for adequate system performance; (3) the problem of refrigerant charge migration; (4) air-cooled design conditions and limitations applied thereto; (5) capacity variation.

Air-Cooled Condenser Design Variants Shown

The discussion on "Condensing Surface and Air Quantities for Integral Hp. Air-Cooled Air Conditioning Equipment," was led by Justin Neuhoff, manager of engineering, General Electric Commercial & Industrial Air Conditioning Dept., and brought out these points from a study of a variety of makes:

A survey of the design practices of seven of the larger companies in the self-contained air conditioner business showed considerable divergence of opinion concerning many of the design parameters. All companies are using copper tubing and aluminum fins for their condensers but from this point of agreement the individual design of each of the companies showed considerable variation.

For example, the number of rows deep varied from two to six. The c.f.m. of condenser air per ton varied from 615 to 1,170 with a median of 900. Air face velocity was from 280 to 605 f.p.m. with a median of 455. The actual square feet of surface per ton ran from 124 to 222 with a median of 151.

How Units Balance Out

Most of the units balance out at around 125° F. condensing temperature when the air supplied to the condenser was 95° F., but there was still a variation of from 117° to 130° F. in the range.

Condenser fan kw., which can be an important part of the total operating cost, was reasonably consistent around a median of 0.16 kw. per ton. One unit, however, was reported as drawing twice that power.

(A more detailed report on the Frozen Food Conference, and on the Domestic Refrigerator Engineering Conference, and the Air Conditioning Conference, will be published in later issues of the NEWS.)

ISOTRON

THE LATEST WORD IN REFRIGERANTS

Pennsalt—a pioneer in modern fluorine chemistry—proudly announces the ISOTRON* line of refrigerants, soon available in commercial quantities from a new Pennsalt plant now being built at Calvert City, Kentucky. Of highest quality, competitively priced, and COMPLETELY INTERCHANGEABLE with other fluorinated refrigerants, ISOTRON products are geared to the rapidly increasing demands of this industry.

The new ISOTRON line will include ISOTRON 11, ISOTRON 12, ISOTRON 22, and ISOTRON 113—backbones of the fluorinated refrigerant field. They're of precisely the same formulas as other products of this kind, and they'll be manufactured with the rigid quality control you expect of Pennsalt. Optimum quality and uniformity are assured.

IF YOU USE FLUORINATED REFRIGERANTS investigate the advantages of ISOTRONS. Benefit from Pennsalt's pioneering research and progressive thinking in refrigerant manufacturing! Pennsalt offers you well-staffed sales-service laboratories, and specialists who are eager to work with you. Learn all the facts about ISOTRON refrigerants—write Technical Services Dept. 326, Industrial Chemicals Division, Pennsylvania Salt Manufacturing Company, Three Penn Center Plaza, Philadelphia 2, Pa.

*ISOTRON IS A TRADEMARK OF THE PENNSYLVANIA SALT MFG. COMPANY

Pennsalt Chemicals

For more information about products advertised on this page use Information Center, page 32.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

Republic's largest newspaper, committed a boo-boo. *El Caribe* published a photo of children putting flowers on a bust of Generalissimo Rafael Leonides Trujillo, their dictator. In the caption underneath the picture, the word "tomb" appeared instead of "bust."

Explosion which followed was described by Dr. German Ornes Coiscu, the newspaper's owner, as like "the furies of hell." A linotype operator and two proofreaders were jailed (Coiscu despaired of their lives) the re-reporter covering the story was fired, and the paper plus Coiscu's home were confiscated. Coiscu fled to the United States.

Paul also sends along this report for the Curious Coincidence department:

"I live in an apartment house with four apartments using one entrance. My neighbors downstairs and across the hall (named Kalt) recently moved out, and the people who moved into their apartment are named Klat."

Paul adds that the two families are not related, do not know one another, and the former tenant had nothing to do with the new tenant getting the apartment.

Unbeatable Business Philosophy

"Look at it with your hat on."

"What is Mrs. Murphy going to think?"

These two phrases were heard over and over again by the people at J. L. Hudson Co. who worked with Chess Lagomarsino, Jr., former publicity director for that huge Detroit department store.

Lagomarsino has left Hudson's (to become president of Richard's department store in Miami) but those and other of his phrases won't be forgotten by his ex-co-workers.

What he meant by "look at it with your hat on" was this: Customers are the only persons in a store who wear hats, and what they want and like is far more important than what the executives and sales staff think customers might want.

"Mrs. Murphy" was a photograph of a woman with an empty shopping basket. Chet preached: "Customer Murphy runs the Hudson store."

And, we might add, any other business.

Remember This Name: Senseman

A Frigidaire employe with a remarkable apt surname has been selected to participate in one of America's top industrial management training programs.

Bob E. Senseman has been awarded a 1956-57 Sloan Fellowship for Executive Development in the M.I.T. School of Industrial Management. Senseman, who is a contractors sales representative for Frigidaire, is one of 30 men in the United States chosen for his honor.

Each year several hundred men are nominated for the 30 spots in that desirable class. William H. Anderson, Frigidaire assistant general sales manager, was a member of the Sloan Fellowship class of 1951-52. And Bill Anderson has turned out to be a prize.

Senseman became a regular Frigidaire employe in 1950 as a copywriter in the sales planning department. His association with Frigidaire, however, dates back to 1940.

The Poor Type B Humans —Or Are They Really Poor?

Some of us hate mornings. They're so early. As James S. Pooler writes in the *Detroit Free Press:*

"Now the scientific facts begin to pour in on our observation that there are Day and Night people—some who rise brightly with the dawn and others of us who reach peaks at night.

"We have heard from quite a few people—some shining during the day and paling at night; others quickening into alertness with the setting sun. This has divided families. Maybe Day people should marry only Day people, and vice versa.

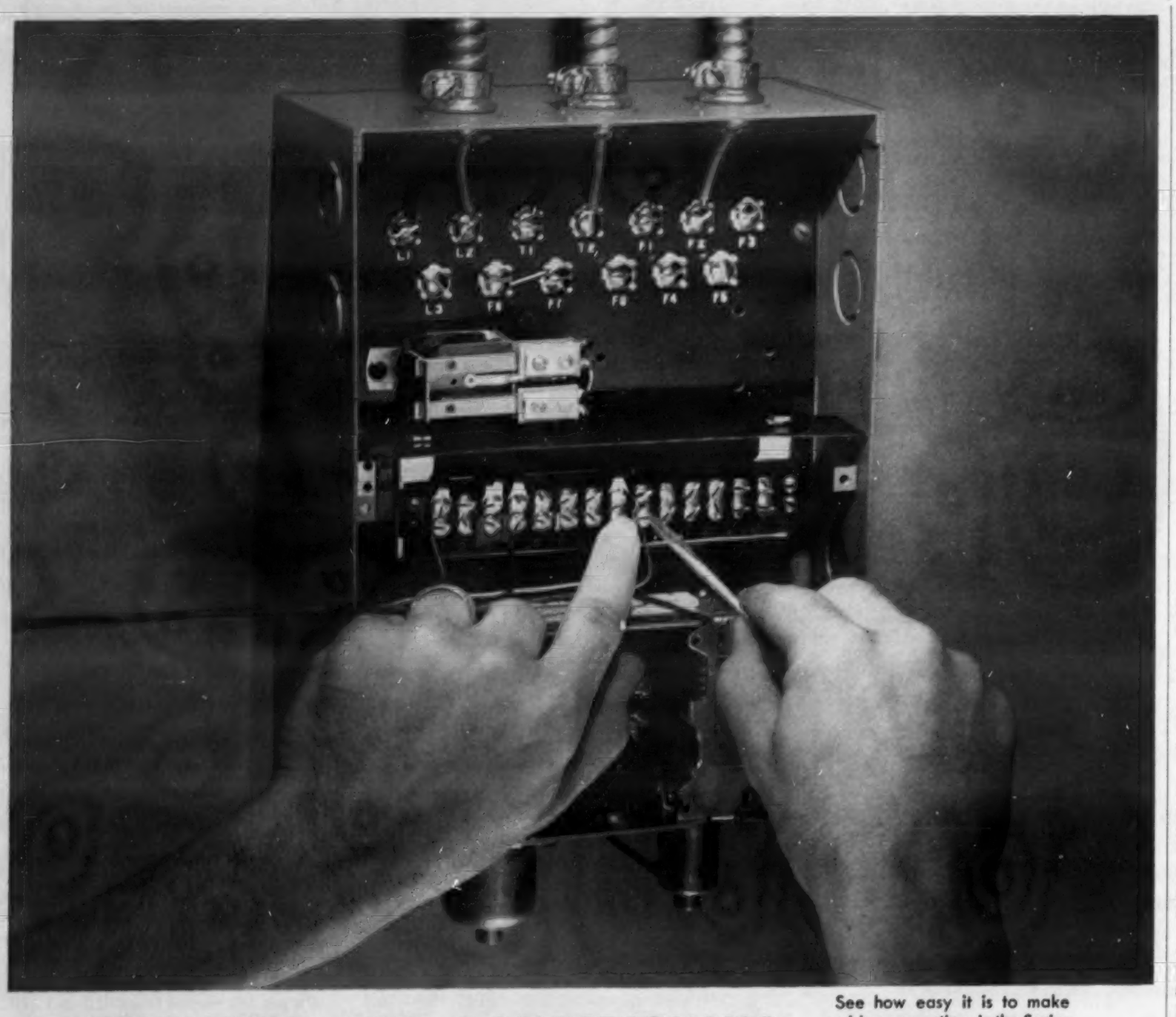
We have seen scientific evidence that Night people have keener senses, can smell better, see better after dark. These people do their best work at night. They tend to be finicky about what they eat. Crowds annoy and tire them.

"They have a different type of body chemistry, according to Dr. Caro Lippman, which makes them impressionable sense receptors. They perceive more of the surrounding world. And since their ears are sharper, they retreat into the quiet and solitude of night to work.

"Oddly enough, as perfectionists—whether at washing dishes, writing, or taking home work from the office—they tend to be highly successful.

"Perhaps this goes back to physical differences in our cave ancestors—when some had to forage by day and some had to guard against the sabretooth tiger by night—and a difference between types began to grow."

Any "Type B" readers (and surely there are quite a few) can take comfort from the above. This 9-to-5 world is organized against us!



See how easy it is to make wiring connections in the Series 753 . . . both line and low voltage terminals are easily accessible in this "clean-cut" panel assembly.

ONE-UNIT AIR CONDITIONING CONTROL SIMPLIFIES WIRING

In the new Penn Series 753 air conditioning control center, all functions are centralized in one compact unit. There are 14 low voltage terminals for both heating and cooling . . . so all wiring is simplified by centering it into one unit. There is no need for additional connection or junction boxes. Also reducing wiring problems are the built-in high and low pressure cut-out controls.

And, there are advantages for the manufacturer, too. For example, the Series 753 has detachable bellows which permit pre-assembly of pressure elements into hermetic systems. To be sure you're getting the best, look for the Penn Series 753 on the self-contained package air conditioning units you buy and install for either residential or commercial applications.

Exterior view of Series 753 residential air conditioning control center.

PENN CONTROLS, INC.

Goshen, Indiana

Automatic Controls For Heating, Refrigeration, Air Conditioning, Gas Appliances, Pumps, Air Compressors, Engines

For more information about products advertised on this page use Information Center, page 32.

Canadian Homemakers Poll

Shows 92% Like Frozen Food Plans Due to Fewer Shopping Trips, Less Food Waste, Improved Diet, Better Flavor, Savings

KITCHENER, Ont., Can.—Ninety-two per cent of homemakers queried in a survey here declared themselves fully satisfied with frozen food plans they had participated in six months or more, it was learned recently.

Ontario Agricultural college conducted a study of 50 housewives, asking 11 questions concerning advantages claimed for home freezers. Of these, 46 expressed favorable opinions. Four who were dissatisfied stated that poor cuts of meat included in the plan, tough steaks, peculiarly-flavored sausages, some items more expensive, and families tiring of frozen vegetables were the causes.

Cite Reasons for Liking Plans

Chief reasons for liking frozen food plans included reduced shopping trips, cut leftover waste, improved diet, and better flavor. Other angles were more tender meat, less meal-preparation labor, simpler and faster preserving by freezing, and allowing the housewife more leisure time, it was added.

Many did not believe there was great reduction in the food bill, but a cost analysis by college experts indicated that 32 families were paying somewhat less for food after joining a food plan.

Disagree that Freezer, Plans Have Disadvantages

In response to six questions that home freezers and food plans have certain disadvantages, women answered every one in the negative, the report pointed out. It was agreed that food costs hadn't increased under a plan through use of higher priced steaks and other foods, frozen meats were no less tasty than fresh, the plan didn't include unwanted food, there was no less freedom of selection, cheaper cuts didn't accumulate, and food wasn't wasted by remaining in the freezer too long.

Chest-Type Freezers Used by Most

Chest-type freezers were used by 47 of the families, the other three using upright models. Forty-five purchased a 12-cu. ft. or larger freezer, only five smaller. And 43 family units liked the present size of their cold chest as compared with five who desired a larger size, and two smaller. Four chest-type freezer owners were dissatisfied with that style, claiming it was difficult to select and get at food inside, the report continued.

Convenience, Savings Are Chief Favorable Reasons

Several reasons were given for joining food plans, but convenience and food bill savings led the list with 20 votes each. Eleven each said they had to buy a refrigerator so decided on a combination unit, or liked the idea of the plan because the wife worked.

Average family size was 4.8 persons. Of the 50 surveyed, 19 families were in the $3,000-a-year or less income group, 29 in the $3-5,000 bracket, and just two over $7,000.

Trying to arrive at a food cost figure, experts used data supplied by the Dominion Bureau of Statistics. Average expenditure for each person a week was totaled for meats, poultry, fish, fruits, juices, vegetables, ice cream, and frozen foods for a similar time of the year in Toronto, near to Kitchener. This figure was assumed to represent expenditures of the families studied prior to joining the plan and used as a yardstick.

Results were that 32 families had saved an average of 62 cents a week per person, five had made no change, and 13 had upped their food budget by 55 cents per capita per week. This represented a savings of $2.98 a week ($154.96 a year) or a loss of $2.64 per week ($137.28 a year), it was pointed out.

Considering all 50 families together, the result was an average saving for each family of $1.20 a week or $62.40 per year. However, the experts added that no allowance was made for expenses under the frozen food plan, such as payments on freezer, interest on freezer or food, operating cost, repairs, and depreciation. These expenses, if added, would eliminate any savings, it was said.

The survey indicated, as a general conclusion, that most members were quite satisfied with their home freezer and food plan.

STEEL *for* STRENGTH

with Every other Selling Point you want in Freezer Shelves and Evaporators!

▶ Considering the loads they carry, freezer shelves need the strength of *steel*. Now, thanks to a new finish and Houdaille's extensive new facilities for applying it, cost no longer stands in the way.

Electro plated with a new, dull and ductile zinc, Houdaille freezer shelves . . . and evaporators . . . are then finished with two electrostatically deteared and baked coats of a new DuPont Epoxy. Natural metal and colors are available. In either case the surface is remarkably hard, smooth and scratch and chip-proof. The units easily withstand many times standard commercial tests.

Add the proven advantages and interior cleanliness of Houdaille copper brazed construction . . . either plate on plate or tube on plate . . . and you have freezer shelves and evaporators with real sales appeal . . . and no service headaches. We'd like to tell you the whole story. Our extensive engineering, research and testing facilities are available to you to help develop units for your specific needs.

HOUDAILLE INDUSTRIES, INC.

NORTH CHICAGO DIVISION

1900 FOSS PARK AVE., NORTH CHICAGO, ILL.

Manufacturers of: Evaporators, Cabinet Cooling Plates Freezer Shelves and Condensers

NRDGA In Fight Against Including Appliances In FHA-VA Mortgages

WASHINGTON, D. C. — The National Retail Dry Goods Association has joined furniture retailers and other groups who are seeking a ban on inclusion of appliances in FHA and VA long-term mortgages.

Urging its members to give strong support to the "fight to bring sanity into FHA and VA mortgages," the NRDGA warned that unless appliance manufacturers are prevented from including their products in mortgage security, "the future may see even furniture included."

The Senate Banking Committee recently asked the FHA to study a proposed housing law amendment which would prohibit including as mortgage security items which are not an integral part of the real estate.

This would cover such items as air conditioners, washers, dryers, dishwashers, and television sets, which retail groups consider "rapidly wasting assets" having a life expectancy far less than the duration of long-term mortgages.

Policies Set for Lewyt Distributor In Long Island Area

LONG ISLAND CITY, N. Y. —The Lewyt Air Conditioner Corp. recently named Polar Distributors, Flushing, L. I., distributor of the Lewyt line of built-in wall air conditioners in New York City, Westchester, Nassau and Suffolk counties, Connecticut and north Jersey.

Polar is a new distributor in the major appliance business. Its principals, Henry Lewison, president, Irving Matorin, treasurer, and Robert Howard, secretary, formed the company recently to handle the Lewyt line exclusively.

Operating as Electronic Installations, Inc., Lewison, Matorin, and Howard served as installing dealers for the Lewyt product when it was first introduced. They were responsible for installations in scores of new apartment houses and private homes in the New York area.

Polar will handle Lewyt's ½, ¾, and 1 ton built-in units to installing dealers, Irving Bottner, Lewyt vice president said. Consumer inquires in the metropolitan area, received at the factory, will be turned over to Polar for assignment.

Builders, interested in 25 units or less, will be requested to transact their business with the distributor. The factory, however, will continue its policy of selling direct to large quantity users, such as owners of existing apartment houses and builders of private dwellings, apartment houses, motels, hotels, and factories.

In its part as distributor, Polar will be responsible for merchandising and advertising the product through dealers. Newspaper advertisements, with dealer listings, are being scheduled on the local level, while dealers are being stocked with direct mail and point of purchase materials. All advertising, however, will be done under factory supervision, it was said.

Florida Room Unit Sales Up 32% In March

MIAMI, Fla.—March sales of room air conditioners were up 32% over the same month last year in the territory served by the Florida Power & Light Co. here, it was recently announced.

For the first quarter, air conditioner sales gained 36% over the first quarter of 1955, the utility reported. It's territory covers the Miami-Palm Beach area and much of inland Florida.

The utility also recorded for March a 126% gain in ironers, 95% in dishwashers, 62% in dryers, 42% in garbage disposers, and 33% in automatic washers.

Refrigerator sales for the month dropped 19% and freezer sales 32%.

For the quarter, ironer sales soared to a 126% increase, dryers were up 50%, dishwashers 43%, automatic washers 23%, ranges 15%, and freezers 14%. Refrigerators sales were down 6%.

Unit Sales for each appliance were as follows:

Appliance	March '55	March '56	3 Mos. '55	3 Mos. '56
Air Conditioners	2,122	2,793	4,311	5,871
Refrigerators	5,164	4,196	14,351	13,430
Freezers	559	382	1,267	1,450
Automatic Washers	2,608	3,461	7,903	9,705
Clothes Dryers	333	541	1,048	1,574
Ironers	21	56	68	154
Dishwashers	329	643	1,077	1,537
Ranges	2,998	2,827	8,886	10,206
Dehumidifiers	....	8	....	20

How G-E motors help

FOR DIRECT-DRIVE ROOM UNITS, (A) permanent - split - capacitor, 35 mhp thru 1/6 hp; FOR DIRECT-DRIVE CENTRAL UNITS, (B,C) perm.-split-cap. thru 1/2 hp; FOR BELT-DRIVE CENTRAL UNITS, (D) cap.-start thru 3/4 hp at 1725 rpm, thru 1 hp at 3450 rpm, and (E) split-phase thru 1/2 hp.

For more information about products advertised on this page use Information Center, page 32.

Mitchell Introduces 5-Hp. Packaged Home, Store Add-On Unit To Up Models to 44

CHICAGO — A new 5-hp. Mitchell packaged store and residential add-on air conditioner now is being shipped to Mitchell's 91 distributors and to dealers, it was announced by J. W. Alsdorf, president, Mitchell Mfg. Co.

First shipments of the new unit brought the total of Mitchell models and sizes in air conditioners now on the market to 44, the Mitchell official further stated.

Another record breaking year for the air conditioning industry was predicted by Alsdorf who said 1956 statistics already show new highs both in consumer acceptance and industry production, the statement concluded.

Smith Cited for AF Air Conditioning, Refrigeration Engineering by SAME

WASHINGTON, D. C. — The Newman Medal Award Committee of the Society of American Military Engineers has selected William T. Smith, chief of the Refrigeration and Air Conditioning section of the Office of the Assistant Chief of Staff, Installations, Headquarters, U. S. Air Force, as the winner of the 1955 award.

Smith was cited by the committee as having developed, implemented, and promulgated the adopted policy for the management and engineering aspects of refrigeration and air conditioning at Air Force facilities and for his outstanding work in climatology in collaboration with the Air Weather Service branch.

simplify your design problems

G-E motors tailored to your air conditioner and produced on schedule help you develop and market new products faster!

General Electric "Form G" fractional horsepower motors can help you improve the design of your new air conditioning units and get them into production faster because:

1. THE RIGHT MOTOR is available from General Electric *now!* The motors at left are typical of the complete line of General Electric motors designed specifically for the high power factor and efficiency you want. If you require modifications to solve a specific design problem . . .

2. GENERAL ELECTRIC APPLICATION ENGINEERS are ready to help you get the best motor for your product, commensurate with performance and cost requirements. And . . .

3. ON-SCHEDULE DELIVERY of General Electric motors helps get your new product into production without delay. As for quality . . .

4. "YEARS-AHEAD" G-E DESIGN has been proved by the outstanding record of over 5,000,000 motors put in use since G-E pioneered in the design of smaller, lighter motors four years ago. You get more dependable motor service and greater customer satisfaction from such G-E features as: a bearing system that needs no re-oiling for summer cooling use; an insulation system of Formex* wire, Glyptal* alkyd-resin, and Mylar† polyester film that is virtually unaffected by moisture and humidity.

You can simplify assembly, too, with such features as the "quick-connect" terminal board and "clip-on" terminals which speed hookup.

These are only a few of the many G-E motor benefits that will help keep your new design program on schedule, and improve your product as well. If you'd like to get help on a specific problem, contact your nearby G-E Apparatus Sales Office. For more information on "years-ahead" G-E motors, write for Bulletin GEA-5567. General Electric Co., Sect. 702-31, Schenectady, N. Y.

*Reg. trade-mark, General Electric Company.

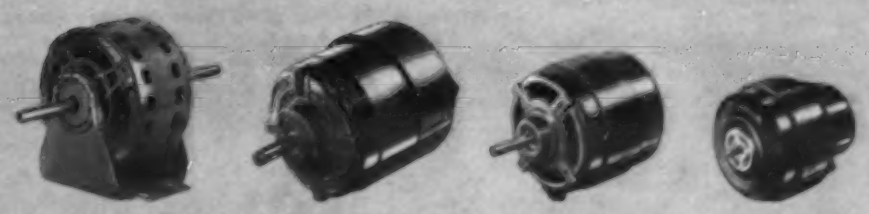
†Reg. trade-mark, DuPont Company.

APPLICATION HELP from G-E engineers familiar with your problems assures you of the best motor to meet your requirements.

ON-SCHEDULE DELIVERY of the motors you need is the result of General Electric's flexible, multi-plant facilities.

GENERAL ELECTRIC

G.E. ALSO OFFERS A COMPLETE LINE OF SHADED-POLE MOTORS



1/12 TO 1/4 HP, 4- and 6-pole
25 MHP TO 1/12 HP, open and enclosed
15 TO 35 MHP, 2- and 4-pole
1.5 TO 16 WATTS, 4- and 6-pole

SAMPLE shown of Acme Industries' "Certificate of Performance" now given with all "Flow-Cold" and "Flow-Therm" packaged liquid chillers.

Acme 'Certificate of Performance' Attests Full Factory Testing

JACKSON, Mich. — "Certificates of Performance" are now being issued with all Acme Industries, Inc. "Flow-Cold" (3 through 20 hp.) and "Flow-Therm" (20 through 150 hp.) packaged liquid chillers.

These signed certificates attest to the fact that each unit so certified has been given a complete factory testing under full load conditions, and that it has performed satisfactorily at its nominal rating. The test is conducted under actual job conditions, and is in addition to the usual factory tests for leaks and mechanical defects.

"The testing procedures involved and issuance of the certificate provide a new method of backing up the engineer and contractor who specify and install Acme equipment which permits them to assure the user that each unit so certified will operate satisfactorily at rated capacity under the conditions specified," declare Acme officials.

FTC-Trion Consent Order Bars Air Filter Claims To 'Guard Against Colds'

WASHINGTON, D. C.—The Federal Trade Commission has adopted a consent order prohibiting Trion, Inc., McKees Rocks, Pa., from claiming that its air filter device guards against colds and other respiratory infections.

This action represents the Commission's adoption of an initial decision by Hearing Examiner Robert L. Piper approving an order agreed to by the company and counsel supporting the complaint.

A Commission complaint, issued Feb. 14, had charged as false the claim that the Trion electronic air cleaner will remove "Over 90% of air-borne bacteria and virus" and result in "Fewer Colds and Other Diseases."

The order specifically prohibits claims that the device "will afford protection from or will effectively prevent the spread of colds or similar respiratory infections."

The agreement is for settlement purposes only and does not constitute an admission by the company that it has violated the law.

Amana Names Roberts Firm Western Tennessee Outlet

AMANA, Iowa — W. L. Roberts, Inc., Memphis, has been named to distribute Amana Refrigeration products in western Tennessee, it was announced here by J. A. Rishel, Jr., general sales manager of Amana.

For more information about products advertised on this page use Information Center, page 32.

Collections

Self-Installed System Speeds Slow Pay Accounts, Minimizes Bad Debts for Service Firm

ALLENTOWN, Pa. — Delinquent accounts receivable and ultimately bad debts have been practically eliminated by Schuler Air Conditioning & Refrigeration Service here since it started its own collection system.

"In my opinion, collections are one of the biggest headaches in business and this is especially true in ours," says George A. Schuler. "We are constantly plagued with unpaid accounts and if we let them run for any considerable length of time, we might just as well forget about them.

"In the past, we had always depended upon the faith of our customers to pay their service bills, but it seems as if faith gets lost when money starts getting tight.

"In any case, in the last few years we found that our accounts receivable were mounting up and that we had to erase a few thousand dollars from our books as bad debts at the close of the year. So we decided to do something about it."

Schuler found that customers who did not pay up, no longer called upon him to service their air conditioning or refrigeration equipment anyhow. So he had nothing to lose by trying to get them to pay up.

And to his surprise, he found that when customers did pay up, even under pressure, they did call back on him. This made him all the more interested to get prompter payment for his services.

After a year's use of his self-installed collection system, Schuler points out, slow-pay customers are paying up faster and his bad debts at the close of the year are at an absolute minimum.

Schuler services industrial, commercial, and residential equipment. His main concern, however, is with residential customers and his collection system is principally designed for them.

Credit Bureau Furnishes List of Credit Risks

Schuler belongs to the Allentown Credit Bureau, which sends him a daily list of credit risks. These are kept on file.

On all service calls, a triplicate service contract is prepared. When a customer calls for service, his name is checked against the credit list and if found listed, the service contract stamped C.O.D. for services. Otherwise he is billed after the job.

The serviceman presents this contract to the customer and if he doesn't wish to pay upon completion of the services, he is told to phone the office. When the call comes in, the customer is told about the credit bureau listing and because of it Schuler can't take any credit risks. The final decision about doing the repair work on credit then depends on the individual case.

(Concluded on next page)

PLEASE
May we have your check for the enclosed? No doubt it has just slipped your mind. But now that you have this little reminder, may a check be expected by return mail? It will certainly be appreciated.

FIRST NOTICE

WHY
has this account been overlooked? Is there any error—any just reason for non-payment? This matter has run much longer than is customary and the courtesy of an immediate reply is imperatively necessary.

SECOND NOTICE

DEMAND FOR PAYMENT
(FINAL NOTICE BEFORE SUIT)
TAKE NOTICE! That the CREDITOR named below hereby makes demand for sum of $..... with interest at the rate of 6 per cent per Annum.
Now, therefore, unless said amount is paid within ..... days from the date hereof; or you show reason why said claim is unpaid and make satisfactory adjustment thereof, LEGAL ACTION will be necessary incurring Cost and Expenses in addition to amount of said claim.
DATE.....
SCHULER SERVICE
George A. Schuler
428 N. Eighth St. Allentown, Pa.
Phone HEmlock 4-7103

FINAL NOTICE

We are a member of the
CREDIT BUREAU
OF ALLENTOWN
INC.
If the attached bill is not paid at once we shall be compelled to turn it over to them for proper rating.

Can you AFFORD to be LISTED with those who DO NOT PAY their bills?

RED STICKER, which is attached to all statements and letters, reminds customer of risk he runs by not paying. It is felt that this has a strong psychological effect.

Can you do this with the condenser cleaner you're using now?

anco condenser cleaner

is completely safe to use. It won't burn workmen's skin or attack metal surfaces, either in dry form or solution. If it's accidentally spilled in the service truck or on tools, no harm's done. Yet, ANCO CONDENSER CLEANER does a fast effective job of removing the heaviest scale. Dissolved in the sump while the system is in operation, it removes scale and rust within 2 to 15 hours, depending on the thickness of the scale. Head pressure drops to normal and operating efficiency is restored. Why take chances with unsafe cleaners? Do a good job safely with ANCO CONDENSER CLEANER.

ANCO COOLING WATER TREATMENT

ANCO ALGAECIDE

Don't ask for trouble—ask for ANCO Products. Available from your wholesaler.

Free
WATER TREATMENT MANUAL
A complete booklet on the control of scale, rust and algae in refrigeration and air conditioning systems. No service department should be without a copy. It's yours for the asking.

SPECIALISTS IN MAKING WATER BEHAVE

Anderson Chemical Company, INC.
Box 1424 • MACON, GEORGIA • Phone 5-0466

INQUIRIES AND
PARTS ORDERS
FOR
- AIR CONDITIONERS
- REFRIGERATORS
- FREEZERS and
- BEVERAGE COOLERS

Made By
UNIVERSAL MAJOR ELEC. INC.
& ARTCRAFT MFG. CO.

Including these Brands: Alsco; Ambassador; Armaid; Artkraft; Cooleraire; Cromwell; Hunter; Kalamazoo; Magicaire; Majestic; Orley; Perfection; Philharmonic; Plymouth; Presteline; Supremacy; U.S. Capitolaire.

SHOULD NOW BE SENT TO

UNIVERSAL
UNIVERSAL DIVISION
THE HORTON COMPANY
915 Liberty Ave., Pittsburgh 22, Pa.

For more information about products advertised on this page use Information Center, page 32.

DELINQUENT accounts are followed closely by George A. Schuler to assure prompt payment and reduce volume of bad debts that must be written off at end of year.

Collection Plan--

(Concluded from preceding page)

Schuler has found that his contract forms help to eliminate delinquent payments because an itemized copy is left with the customer after the services have been rendered and a signed one returned to the office. A third copy which was used to dispatch the serviceman is kept on file for reference.

Customer's Copy of Contract Minimizes Misunderstandings

"Many customers complain that they didn't pay their bill promptly because they felt that they were being overcharged," says Schuler. "But when a copy of the contract is left with them, it gives them a time and material breakdown that enlightens them. And signing a duplicate contract is also an effective instrument."

All statements are mailed out the day following the rendering of services. At the close of the month, all accounts are analyzed and the paid up bills taken from the stack. The open accounts are then followed up for collection.

The collection system consists of three stickers and four postals, each worded stronger than the previous one. Usually, in between the mailings, the customer pays up and the account is marked closed. Schuler has had to use all his mailings in very few instances.

The first sticker says: "PLEASE —May we have your check for the enclosed? No doubt it has just slipped your mind. But now that you have this little reminder, may a check be expected by return mail? It will certainly be appreciated."

The next slip attached to a copy of the bill reads: "WHY has this account been overlooked? Is there any error—any just reason for non-payment? This matter has run much longer than is customary and the courtesy of an immediate reply is imperatively necessary."

5-Day Interval Between Notices

Then follows a series of postals that (1) again calls the attention of the customer to the bill, (2) a card insisting that the customer observe his credit terms, (3) a delinquent and final notice, and (4) a demand payment before legal action is taken.

"All mailings take place five days apart," says Schuler, "because the consistency of these notices carries a lot of weight.

"On all letters and statements, we attach a red sticker that tells the customer we are a member of the Allentown Credit Bureau and if the attached bill is not paid, they will be notified accordingly. Delinquent customers do not want to be linked to those who do not pay their bills and it has a strong psychological effect," he emphasized.

Every time a notice goes out, it is recorded on the customer's contract so that follow-up can be timely.

Schuler's office clerk handles the collection system. To date, Schuler has never had to turn a collection over to an attorney or a collection bureau because he has found that a settlement of the debt at less than face value is much better.

"Rather than pay an attorney a fee or give a collection bureau a percentage of the collections, we would rather make a cash settlement," says Schuler. When such drastic measures are taken, it doesn't do anyone any good.

"Our method is not foolproof —we can't collect them all," he adds. "But we do make every effort, and feel that our losses are at an absolute minimum."

SPECIFY

alco solenoid valves

A SOUND INVESTMENT, ALWAYS QUIET

THEY ASSURE DEPENDABLE REFRIGERANT CONTROL WITH LITTLE MAINTENANCE:

- Tight seating for positive shut-off
- Moisture-proof coils to prevent burn-out
- Easy servicing without breaking connections

Add these advantages to your refrigeration systems. ALCO—the most complete line for all types of refrigerant service: liquid, suction or hot gas discharge . . . brine, water, steam and air.

SEE YOUR ALCO WHOLESALER

Write for Condensed Catalog 20 and technical bulletins 173 and 182

ALCO VALVE CO.

853 KINGSLAND AVE. • ST. LOUIS 5, MO.

6650

ENGINEERED...for service...for life

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

MARSH Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.

PRESSURE GAUGES and Dial Thermometers for all services.

MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.

MARSH INSTRUMENT COMPANY

Sales Affiliate of Jas. P. Marsh Corporation

Dept. D, Skokie, Ill.

HPACCNA Approves Mechanical Contractors Name, Adopts Set Of National Policies, Joins Better Heating-Cooling Council

LOUISVILLE, Ky.—The Heating, Piping & Air Conditioning Contractors National Association formally voted at the closing session of its 67th annual convention at the Brown hotel here to change the name of the organization to the Mechanical Contractors Association of America.

Another major action of the convention was approval of a set of stated national policies for the association, officials reported.

Other highlights of the four-day gathering were open panel discussions, including one on air conditioning and refrigeration, and a talk by Peter T. Schoemann, general president of the United Association, in which he clarified the position of the UA on a number of topics of interest to the contractors.

The organization name change will be effective upon the completion of final legal arrangements for the merger of the old group with the newly-designated association. All measures will be completed with the filing of legal documents required to consummate the consolidation.

Purpose of Name Change

As was pointed out at the 66th annual convention when the name change was initiated, the change was taken to aid the contractor in his relationship with owners and builders "as it will more clearly emphasize his contribution to the construction industry."

George Hall, president of Hyland, Hall & Co., Madison, Wis., became first president of the new association when he accepted the gavel from out-going President Edward Jungbert of Louisville, Ky.

Joseph H. Spitzley, president of R. L. Spitzley Heating Co., Detroit, was elected vice president, and Horace Wetzell of The Smith & Oby Co., Cleveland, treasurer. Lloyd B. Gruman, Jr., New York, was re-elected secretary.

National policies for the association were adopted as guides for action by all members in their dealings with organized labor, general contractors, architects, engineers, suppliers, government agencies, and the public, and affirm the association's stand on trade practices, welding, standards, and trade promotion.

WITH OR WITHOUT FAITH, air conditioning has improved attendance at the First Baptist Church in Warsaw, Ind. The church auditorium is cooled by two Carrier 5-hp. Weathermakers installed on each side of the Baptistry. Basement is used for air return. Church is one of two that is air conditioned in this resort town of 6,000 population in Indiana's northern lake region.

Featured in the policy on labor relations is the stand that the interest of all participants, public, management, and employe must be considered in all problems, and that every available means must be exhausted to amicably settle disputes on the local level.

Other Action Taken

The association also:

1. Affirmed its continuing support of the Industrial Relations Council for the Plumbing and Pipefitting Industry, and the National Joint Board for Settlement of Jurisdictional Disputes.

2. Called for no artificial limitations on the output of the individual worker or upon improvements in industry techniques, and called for continuing support of apprenticeship training programs as a means of improving the contribution the industry makes to the comfort and economic welfare of the nation.

Prime Contractor Status Recommended

3. Recommended to its members that they act as prime contractors whenever possible in order to better serve the public, and that they should not sign contracts that require the contractors to guarantee the performance of a system where the plans and specifications have been prepared by architects and engineers, but rather that the only guarantee offered in such a situation be one covering workmanship and material.

4. Stated its opposition to suppliers making engineering layouts and material-quantity take-offs and labor estimates.

Union Views Stated

The contractors heard Schoemann outline the United Association's policy on "Labor-Management Cooperation." Schoemann, in departing from his prepared text, clarified the position of the UA.

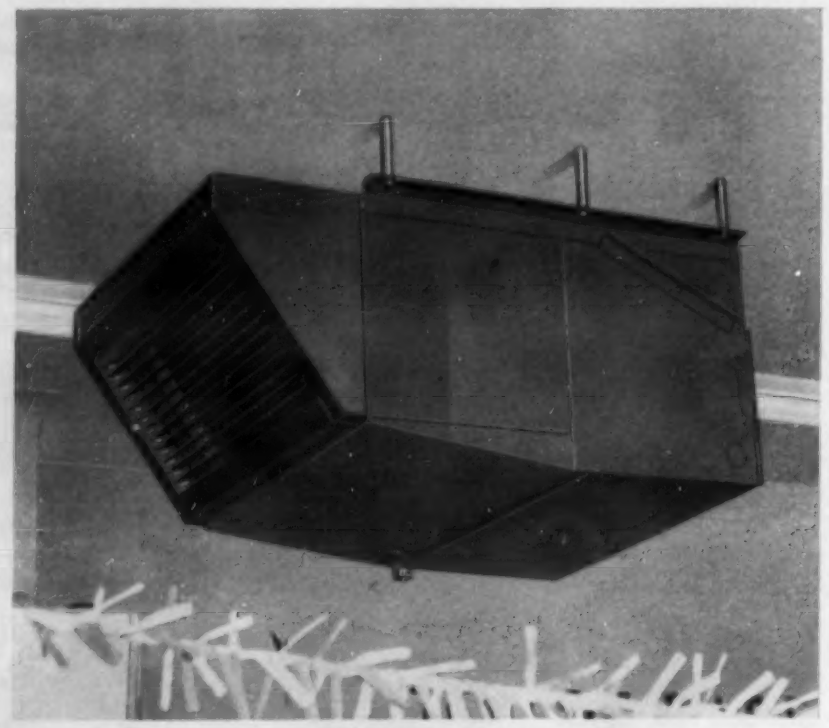
Speaking of the union's position on the national agreement problem, he explained that the agreement limited signers to only the specific type of installation designated, but that contractors holding an agreement with any local of the UA would find that agreement recognized in any locality where they wished to operate.

The general president also pointed out that the signers of the national agreement agreed to pay 1¢/hr. for each hour

(Concluded on next page)

New adaptable air conditioner

BUILDS SALES FOR DEALERS



Only Worthington's FLEXI-COOL fits anywhere

FLEXI-COOL'S exclusive sectional construction is ringing up big air conditioning profits for scores of Worthington dealers. Here are just a few of the many comments received:

Elliot-Lewis, Phila., Pa.—"We sold a FLEXI-COOL to an automotive store owner who said, 'If you can hang it from the ceiling, I'll buy it.' "

Haried Co., E. Aurora, Ill.—"Our job was to air condition a smart restaurant without disturbing the layout or decor. FLEXI-COOL was the only air conditioner that could do the job."

Refrigeration of North Jersey, Dover, N. J.—"We made five sales recently. In every case, FLEXI-COOL'S sectional construction was the deciding factor."

Modern Heating & Plumbing, St. Louis, Mo.—"A local department store wanted a unit that could be installed in extremely small space, not interfere with traffic, yet function with maximum efficiency. FLEXI-COOL was the only answer—and they bought it."

Take advantage of these top selling features:

- FLEXI-COOL can be installed as a package or with blower, filter and coil remote from condensing unit.
- Horizontal installation on ceilings.
- Vertical installation in almost any out-of-the-way floor space, closet or basement.
- Choice of air or water-cooled system.
- Five Year Warranty on refrigeration cycle.
- FLEXI-COOL saves you inventory space.

Cash in on the big sales that FLEXI-COOL offers—a few exclusive Worthington franchise opportunities are still available! For complete information, send coupon today! A-6.112

WORTHINGTON CORPORATION
Air Conditioning & Refrigeration Div., Harrison, N. J.
Please send me complete information on the FLEXI-COOL line.
Check one: ☐ I am ☐ I am not interested in obtaining an exclusive Worthington franchise if available in my trading area.
*Store*_____
*Name*_____
*Address*_____
*City*_____ *Zone*_____ *State*_____
(please print)

WORTHINGTON

CLIMATE ENGINEERS TO BUSINESS, INDUSTRY AND THE HOME

For more information about products advertised on this page use Information Center, page 32.

Mechanical Contractors--

(Concluded from preceding page)

worked by a member of the UA into an educational fund for apprenticeship training.

In discussing the working of the merger between the AFL-CIO and the dispute over jurisdiction in industrial plant expansion, Schoemann said:

Intends To Retain Jurisdiction

"We are not opposed to a successful merger, but don't believe that we intend to give away, amend, or change the jurisdictional rights given to the United Association by the American Federation of Labor 69 years ago."

He went on to emphasize that he intends to preserve that jurisdiction.

Another speaker was Franklin Greene, executive director of the Better Heating-Cooling Council. He explained the purposes and plans of the council in its efforts in revitalizing "the selling—the life giving functions" of the hot water and steam heating and air conditioning industry.

Contractors Join BHC

Following Greene's presentation, the board of directors of the Mechanical Contractors Association of America voted to join BHC.

The panel on air conditioning and refrigeration, headed by William S. Bodinus, was a "crowd gatherer."

Initial discussion centered on the development of pushbutton absorption type cycle machinery for air conditioning applications by Carrier Corp. Jack Salmon of Carrier, utilizing a film strip cartoon, explained the cooling principle involved and diagrammed the construction of the basic equipment.

Heat Pump Discussion

Robert G. Werden of York Corp. discussed the latest in heat pumps, York's two compression stage heat pump that utilizes outside air with temperatures as low as -20° F. as a heat sink.

The resulting economies of this system "which eliminates the need for auxiliary strip heaters and thus makes an air source heat pump directly competitive with other heating-cooling methods" proved of great interest to the contractors.

Werden claimed that of the first two installations made, one had successfully competed with No. 6 oil and bettered it by 6% and the other beat 720 B.t.u. gas by 8%.

The use of heat pumps where a sufficient supply of well water is assured was also discussed in connection with the new Southdale Shopping Center in Minneapolis.

Heats, Cools Shopping Center

Jack Floreth, also of York, described the Southdale heat pump application designed to supply 22,000 tons of air conditioning to the shopping center using 52° F. well water as both a heating and cooling source.

Harold J. Ryan of New York reminded members that it was the contractor's responsibility to stay abreast of developments to insure the owner his dollar value from his air conditioning installation.

Ryan pointed out that specifications were not being spelled out now as before and the contractor must serve the manufacturer and the design engineer as a middleman who knows the intricacies of installation and who must satisfy the owner with the system he installs.

Other action taken was to increase members' dues to allow the national office to further expand its services to the membership.

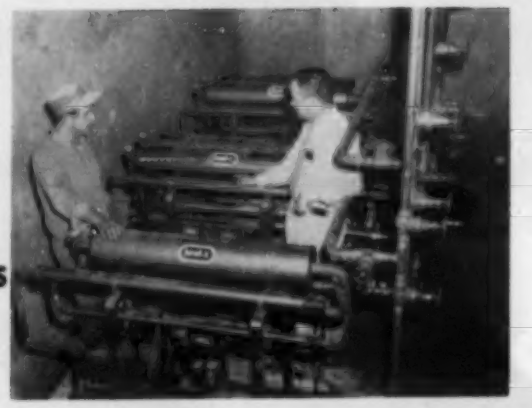
New Membership Categories Formed

Three new membership categories were also created: class 7 members doing a volume of business annually from $2.5 million to $5 million will pay $400 annual dues; class 8, members doing a volume of business in excess of $5 million will pay $500 annual dues; and a special membership classification, sustaining member, who, instead of paying the regular dues, will pay $1,000 annually.

At the final meeting of the board of directors it was voted to establish in conjunction with the UA a National Joint Pipefitter Apprenticeship Committee to be composed of five members of MCA and five members of UA. The committee is responsible for maintaining an up-to-date apprenticeship training program throughout the nation.

The headquarters of the Mechanical Contractors Association is scheduled to move to Washington, D. C. in the fall of 1957, it was announced at the convention.

Next year's convention, the 68th, will be held at the Fontainebleau hotel, Miami Beach, Fla., May 7-10.



INSTALLATION of three Heat-X package chillers which supply chilled water to three air handling units to air condition the Ohio Turnpike service plaza near Fremont, Ohio can be paralleled or cut out as load conditions require.

3 Package Chillers Adjust to Loads To Cool Plaza

FREMONT, Ohio—Air conditioning of the service plaza on the Ohio Turnpike near Fremont is handled by two 15-ton and one 7½-ton air handling units to which chilled water is piped.

The three Heat-X "PC" package chillers which supply chilled water to the units occupy only 96 sq. ft., saving valuable floor space in the basement.

"An unusual feature of the installation is an especially efficient piping system which permits paralleling or cutting out chillers as load conditions require," it was stated. "This arrangement effects substantial power savings and permits more efficient operation."

Contractor was Sam Ross & Sons, Inc. of Lorain, Ohio. The Heat-X units were purchased through Williams & Co., refrigeration wholesaler in Cleveland.

this Paragon 3400 series time switch

ENDS HAPHAZARD DEFROST CYCLING

Especially designed for service where defrost cycle exceeds 2 hours.

. . . heavy-duty, industrial-type motor is the KEY to dependable ON-OFF-ON compressor shutdown defrosting

In time controls, ruggedness pays off! If a time control does not bring a refrigeration system out of a defrost cycle, it means *real* trouble. Where a customer formerly had ice cream to sell, he now has soup . . . steaks have turned to spoiled beef.

You *can* do something about this by making sure the 3400 series is a *standard installation* on every commercial job. You *can* expect a minimum life expectancy of *5 to 7½ years* from the industrial-type, heavy-duty, 4-watt Telechron motor. No question about it! When you install a Paragon 3400, you assure years of continuous, dependable protection.

Isn't this the profitable way to add satisfied customers . . . cut call-backs? Get all the details NOW on the famous Paragon 3400 series.

- INSTANT ADJUSTMENT — add or remove quick-change dial trippers any time . . . 1 to 6 defrost cycles per 24-hour period.
- TWO COMPLETE SETS of trippers included with each time switch.
- "TORSION-CLUTCH" DIAL DRIVE — turns freely for manual check, yet has positive, no-slip drive.
- SKIP-TRIP may be manually operated without disturbing sequence of automatic operation.
- Available in 120-v and 240-v, a-c SPST, DPST and SPDT, 30-amp, 1-hp types.

96% of all the manufacturers using automatic defrost in commercial refrigeration specify Paragon

PARAGON

Also write for complete facts on these famous Paragon timers.

ELECTRIC COMPANY

Two Rivers, Wisconsin

WORLD'S FOREMOST MANUFACTURER OF TOP-QUALITY TIME CONTROLS

"In Canada: Automatic Electric Sales (Canada) Ltd., Toronto"

Sherer-Gillett Gives Third Scholarship

MARSHALL, Mich. — The third annual award of the scholarship sponsored by Sherer-Gillett Co. at Ferris Institute, Big Rapids, Mich., has been won by Kenneth B. Geiman, a 1956 graduate of Marshall High school.

The scholarship covers a two-year course in refrigeration technology and has a $1200 cash value to the winner. In addition, he is offered employment by Sherer-Gillett during the summer vacation periods and also has the opportunity of permanent association with the company although it is not required that he join the firm.

Each year the award winner is chosen from those seniors or recent graduates of Marshall High making formal application to the superintendent of schools, Harley W. Holmes, who serves as a member of the selection committee along with a faculty member and a Sherer official.

According to John H. Coolidge, company president, Sherer-Gillett undertook the annual award in an effort to interest young men graduates from the local school in refrigeration.

JOHN H. COOLIDGE, Sherer president, watches Harley W. Holmes present scholarship to Kenneth B. Geiman as M. H. Strong looks on.

'Controlled Atmosphere' Cold Storage May Provide 'Tree-Fresh' Fruit All Year

ALDERSHOT, Ont., Can.—An era in which the housewife will have virtually fresh fruit on her table every day in the year was heralded with the opening of a sealed room here.

The room, unlocked after nine months, contained McIntosh apples placed in "suspended animation" to preserve their taste, color, and flavor, in a "revolutionary" process."

Said R. W. Graham, president of Aldershot Cold Storage Co., which experimented in the new "controlled atmosphere" method: "This means 'tree-fresh' apples all year around.

"We can use the same process on other varieties of apples, peaches, pears, and some types of grapes," Graham said. His is the second plant in Canada to use this particular method.

The new method of cold storage will end the old system which enabled apples to be kept only until the first part of January.

Moreover, they would rot in three days after being brought into room temperature. Flavor also deteriorated.

APPLES HAVE SHELF LIFE UP TO 4 WEEKS

Now, apples can be released from the sealed rooms at any particular time, and be allowed to stay on the store shelves as much as four weeks before starting to spoil, it was pointed out.

Controlled atmosphere means keeping fruit under refrigeration in higher-than-normal carbon-dioxide and lower-than-normal oxygen concentration, said Horace Kendrick, manager of the plant.

MORE THAN DOUBLES LIFE OF SOME APPLES

"This more than doubles the life of a variety of apples such as McIntosh, when compared with storage in air at 32° F.," he said.

A check was made on the oxygen and carbon-dioxide content in the room every 12 hours since the apples were placed there last September.

Inside, the oxygen content is kept at 6% as compared with 21% outside, while the temperature is maintained at 38°, said Kendrick. When fruit leaves the tree, it is still alive, and this process sort of places it in "suspended animation," he said.

SPECIAL ROOMS NEEDED FOR NEW PROCESS

The apples are owned jointly by Harry Wald and Irving Kelner, who have been in the fruit business for a score of years. They became interested in the method last year and decided to have the two special rooms built at the cold storage plant.

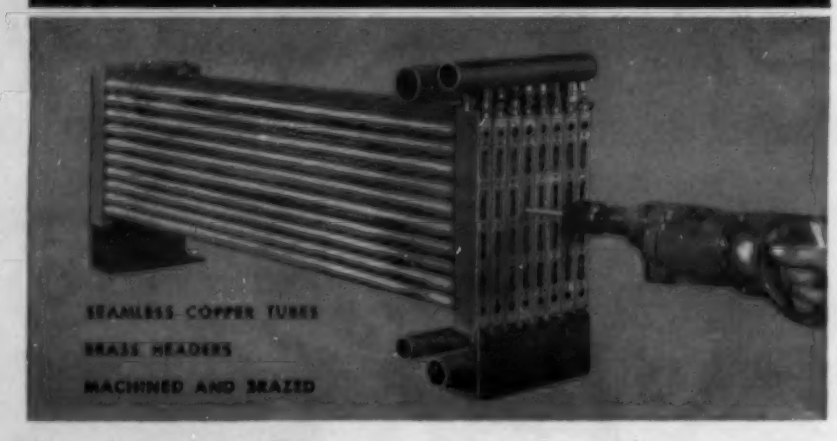
Faced with something that had never been built before in Canada, A. W. White and A. E. Appleby, contractors, had to go to the New York area for advice on the new kind of building. They built it in six weeks, just in time to store the apples at the end of harvest.

The two 60-ft. square rooms start with an outside layer of cement blocks and work through six different layers of insulation to a foot of cork.

WE KEEP WATER-IMPURITY WORRIES AWAY

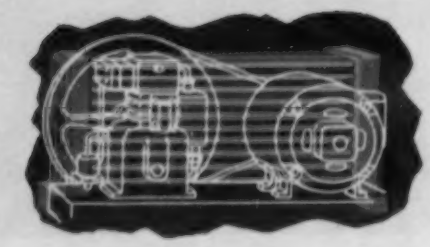
. . . because . . .

this Condenser is CLEANABLE



a cleanable clean condenser → always high heat-transfer capacity

We make CLEANABLE Condensers to leave you free from the worry that lime or other impurities are coating the inside of your condenser tubes . . . are cutting heat transfer capacity . . . are raising power bills.



Because CLEANABILITY avoids progressive fouling of water tubes, Halstead & Mitchell water-cooled condensers can be designed around the most efficient . . . and most economical . . . area of copper heat transfer surface. Thus your first bonus is in original investment—CLEANABILITY at no extra price.

No matter how severe water conditions may be, a simple mechanical cleaning tool puts a Halstead & Mitchell CLEANABLE Condenser back to operating with new-unit efficiency in a matter of minutes. Thus, your second bonus—long, low-cost, trouble-free life.

Most leading manufacturers have long recognized the need for, and economy of CLEANABILITY in all sizes. It will pay you to take no less!

WRITE FOR LITERATURE

HM Halstead & Mitchell

BESSEMER BUILDING • PITTSBURGH 22, PA.

WORLD'S LARGEST MANUFACTURER OF DOUBLE-TUBE, COUNTER-FLOW, CLEANABLE CONDENSERS

1/3 thru 25 TONS

IDEAL Speed-Freeze PRODUCTS

BEVERAGE COOLERS AND INSTANTANEOUS DRAFT BEER COOLERS. (With Refrigerated Faucets)

WRITE IDEAL COOLER CORPORATION
3953 EASTON AVE • ST. LOUIS 6, MO

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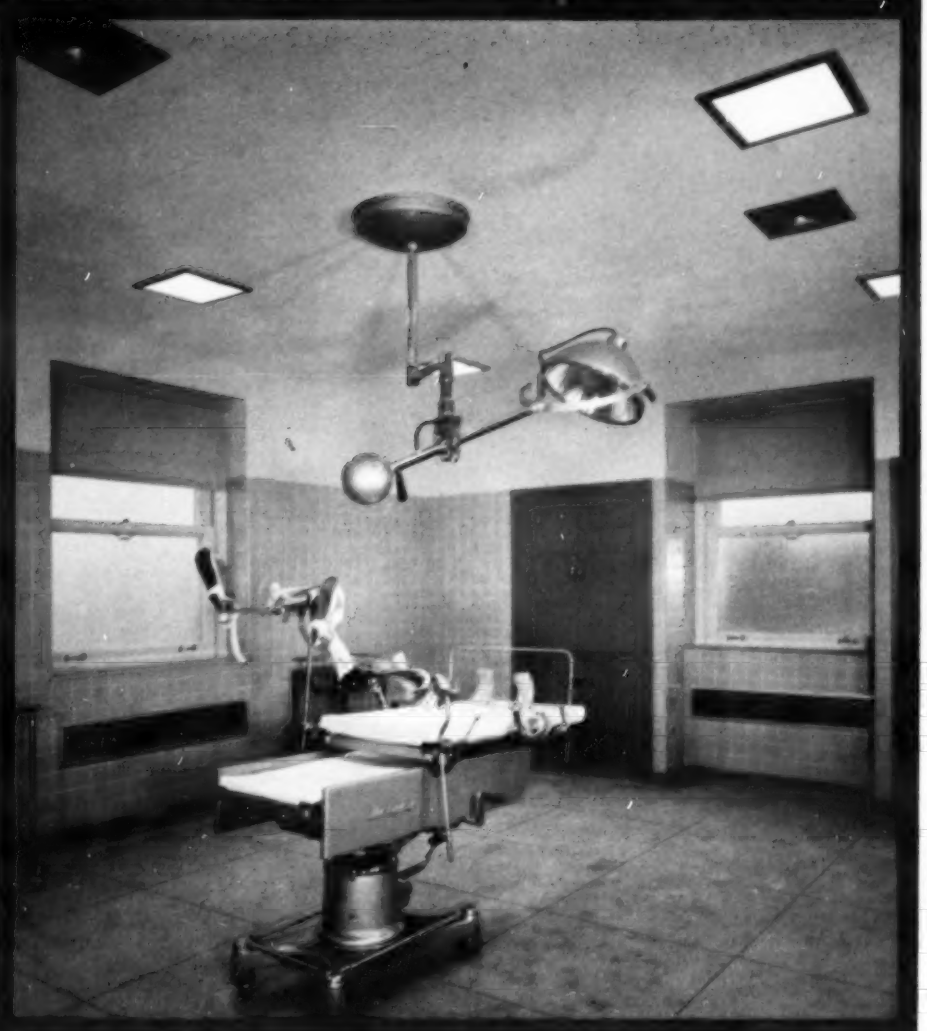
Photos: A. R. Gilbert



▲ To provide draftless air diffusion in the delivery room, All-Air High Velocity units are placed under the window. High velocity sound attenuation chambers with square diffusers are mounted in the ceiling. *Turn page for detail.*

▼ In the nursery for premature infants, sound attenuation chambers with square air diffusers are mounted in the ceiling. *Turn page for detail.*

A new high in

high velocity for hospitals

New wing of Abington
Memorial Hospital, Abington, Pa.

Architects & Engineers:
Jack Steele Company, Philadelphia, Pa.
Schmidt, Garden & Erikson, Chicago, Ill.

Air Conditioning Contractors:
Huffman-Wolfe Company,
Philadelphia, Pa.
Paul A. Norair, Washington, D. C.

▲ All-Air High Velocity under-the-window units are used in all private and semi-private patients' rooms. *Turn page for detail.*

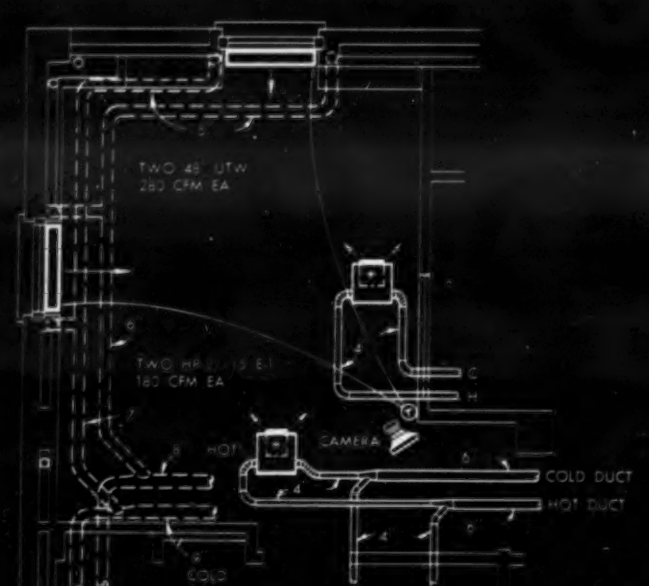
Here are shown applications of the Anemostat All-Air High Velocity air distribution system in the new wing of the Abington Memorial Hospital.

The trend towards Anemostat All-Air High Velocity Systems is growing rapidly. The Anemostat All-Air High Velocity air distribution system can be used with smaller than conventional ducts. It can be installed faster and at less cost. It requires no coils, thus eliminates leakage, clogging and odors. These units save space when installed in hospitals, office buildings, department stores, banks, schools, factories and other structures.

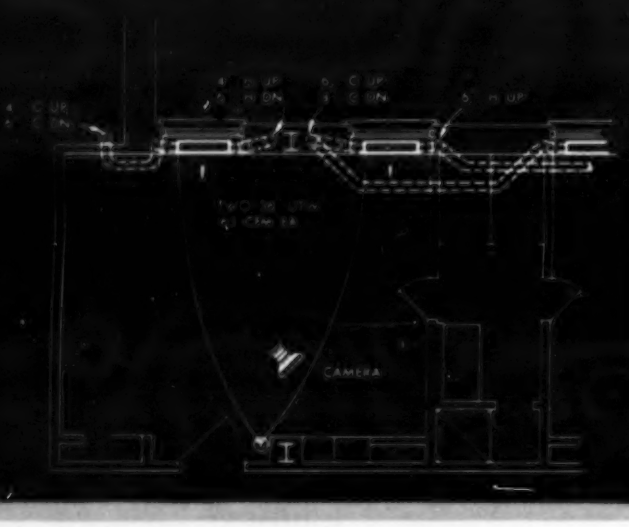
ARCHITECTS—Attention Please:
Anemostat round, square and straightline diffusers with high velocity units complement a wide variety of architectural designs.

Write on your business letterhead for 1956 New Products Bulletin and Selection Manual 50

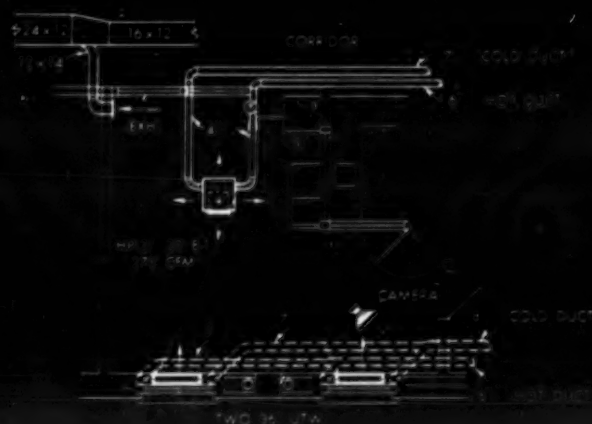
Delivery room



Patients' room



Premature Nursery



ANEMOSTAT®

DRAFTLESS *Aspirating* **AIR DIFFUSERS**

ANEMOSTAT CORPORATION OF AMERICA

10 East 39th Street, New York 16, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

The Pioneer of All-Air High Velocity Systems

AC 1339

Dealer Induces Homeowners To Air Condition Entire Home, Builds Sales by Concentration on Packaged Unit Market

ST. LOUIS—A plan to induce homeowners to think of air conditioning the entire residence, rather than cooling just one or two rooms, has proved profitable for a veteran local packaged unit dealer.

Ideal Prospect Is Room Unit User

Carl Tarkow is convinced the ideal air conditioning prospect is one who has used a room unit for some time and is sold on air conditioning, except for price.

Consequently, the Tarkow Furniture Co. has concentrated its promotion on the packaged unit market. A colorful window display tied in with a slogan "sticks in the average homeowner's mind and creates active prospects," Tarkow says.

Slogan Draws Attention

His slogan, "Cool Your Home for 75 cents a Day, Using Existing Ducts" draws attention. Then, in his main display window in the downtown furniture store, the York dealer sets a 2½-ton packaged air conditioner with a huge explanatory sign. Photographs show typical homes which have been successfully air conditioned using this unit.

Diagram Points Out Existing Ductwork Use Reduces Cost

An exploded diagram indicates the method of central installation which Tarkow Furniture has been using. It points ont that average installation price using existing ductwork comes to only $1,095.

In talking to a prospect, a thick file of testimonial letters is drawn on, showing a complete breakdown of summer operating costs as the "convincer."

Tarkow says in most instances operating cost was "well below" 75 cents a day. Even though this occurred when last summer's temperatures were lower than usual, the dealer feels he can make good on the 75-cent estimate.

Requires Only Minor Changes To Install

Economy of installation of 2½-ton packaged air conditioners stems from the fact that most St. Louis homes still use coal burning, stoker-equipped furnaces with plenty of space in the plenum where heating ducts intersect, Tarkow noted. He says it requires only minor changes to install a packaged unit between furnace and duct headers where it can operate in a relatively cool spot and provide adequate circulation.

In two, or four-family dwellings—a large part of the city's residential units—where there normally are two or four accessible furnaces in a row, the dealer finds it easy to modify them. Tight restrictions on gas heat installation causes widespread coal heating which have, what Tarkow believes to be readily-changed ductwork.

Staff Concentrates on 'Doing Entire Home'

When an air conditioning prospect responds to an advertisement or is a "walk-in," Tarkow's sales force concentrates on "doing the entire home." Tarkow claims excellent response from his demonstration that effective air conditioning installations can be made for a reasonable price.

In very few instances has it been necessary to boost the cooling capacity, and Tarkow has found little opposition, once the unit is sold, to convince the customer to take a 3, 3½, 4, or 5-ton packaged unit.

Firm Incorporates

AUSTIN, Texas — Amarillo Air Conditioning Co. has recently been incorporated in Amarillo, records in the Secretary of State's office here show.

Capital stock of the company was listed as 100 shares at $10 a share.

ASHAE Research Director Outlines Projects Under Study at Laboratory

LOUISVILLE, Ky.—The effects of air conditioning on human comfort and performance is now under study by the American Society of Heating and Air Conditioning Engineers and the study is expected to provide information which may greatly increase the use of air conditioning, it was reported recently.

This and other research studies of the society were described here by Elmer R. Kaiser, director of research for the society, in an address before the 67th annual convention of the Heating, Piping & Air Conditioning Contractors National Association.

The current $240,000 research program of the society includes 22 projects being conducted at the society's Research Laboratory in Cleveland and at 11 cooperating institutions.

Kaiser told the contractors that among the problems now under study by the society are hot water heating, fan and air noise, industrial ventilation, infiltration into commercial buildings, panel heating and cooling, prediction of heating and cooling loads, noise in piped liquids, and odor control.

He added that because of the rapid tempo of today's increasing activity in heating, ventilating, and air conditioning, contractors and design engineers must have quick and accurate answers to their problems.

Kaiser pointed out that the Research Laboratory maintains close liaison with the heating and air conditioning contractors through their associations.

ASPIR-JET
SPRAY NOZZLES RAISE TOWER EFFICIENCY

The swirling, atomizing action of the water as it goes through the Aspir-Jet means more effective heat transfer and higher efficiency from any spray-filled cooling tower. Pressure as low as ½ pound gives effective water break-up and distribution. Formed of butyrate plastic, Aspir-Jets will not corrode.

• Available through Refrigeration and Air Conditioning Wholesalers.

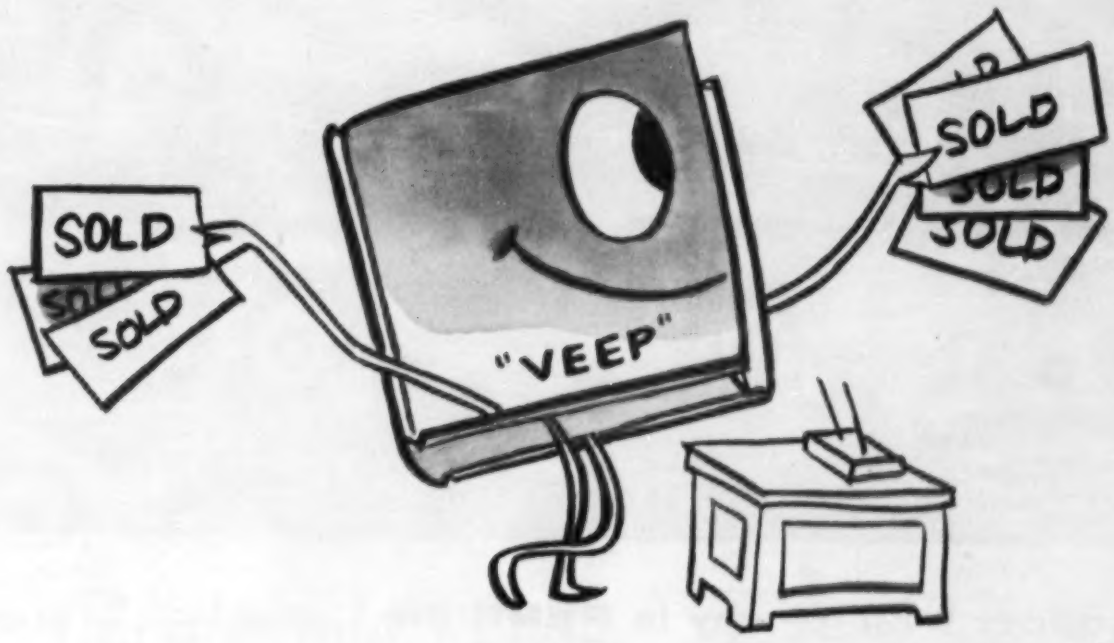
Manufacturers & Refrigeration Wholesalers: if you are not now using or stocking this astounding new product, wire or write

THERMAL AGENCY
National Sales Agents
1515 DALLAS • HOUSTON, TEXAS

Report #6

THE G-E "VEEP" IN ACTION

How new G-E "Magic Sales-Maker"--a consumer visual sales presentation, popularly called "The Veep"--helps increase sales for G-E Home Heating and Cooling Dealers



7 out of 8 furnaces sold -thanks to the "VEEP"

MATT ANDERSON
Central Service Sales, Inc.
General Electric Dealer
Seattle, Wash.

MATT ANDERSON of Central Service Sales, Inc., Seattle, Wash., received his "Veep." Then he began to get spectacular results.

On one of his floor days, he received 8 phone inquiries on G-E Furnaces. He made appointments on all 8 calls and sold 7. Six of them were closed on the first call. "The 'Veep' did the trick," Matt writes.

He writes further, "I was very appreciative when you came out with the 'Veep' as it is a tremendous asset, especially in closing sales of which 80% of mine are individual replacements. Since the arrival of the 'Veep' it is possible for me to close at least three out of four on the first call."

Watch for more true sales stories like this one — in future G-E advertisements in this publication. They all teach the same lesson: — the profit-wise home heating and cooling dealer is the one who has climbed on the G-E Bandwagon. Want to join up?

FREE! Sales Secrets That You Can Use. Exciting success stories by G-E salesmen like yourself. Tell how they broke sales records with the aid of the "Veep." For your copy write GENERAL ELECTRIC, HOME HEATING AND COOLING DEPT. AC-66, BLOOMFIELD, N. J.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Home Heating and Cooling Dept., Bloomfield, N. J.

For more information about products advertised on this page use Information Center, page 32.

Cascade-Type System Maintains -90°F. In 10-Cu.Ft. Space To Store Viruses

CHICAGO — If present research isolates the cause of the common cold, refrigeration will be credited with an assist.

Department of Medicine of the University of Illinois here makes extensive use of refrigeration for various experimental studies, but it is a 10-cu. ft. upright low temperature cabinet which is aiding in the common cold project, as well as others.

This cabinet, which was produced by the Haskris Co., Chicago contractor, maintains a temperature of -90° F. for the storage of virus preparations.

Medical scientists at the university are conducting several research projects in which virus preparations are involved. These are subjected to a variety of tests, but since the tests on any one batch of virus preparation are not conducted simultaneously, the rest of each batch must be stored without change.

Freezing apparently has little effect on the potency of the virus, points out T. Inouye of the university staff.

Mechanical refrigeration must be employed for storage, he also explained, because the carbon dioxide of "dry ice" would be toxic to the viruses.

High side of the low temperature cabinet consists of two 1½-hp. Copelametic compressors connected in a cascade system. "Freon-22" is used in the higher temperature stage, "Freon-13" in the lower.

Design of the refrigeration system for the cabinet incorporates an arrangement which automatically relieves high-pressure refrigerant upon shutdown and gradually returns it to the system on start-up. The feature was developed and patented by Frank L. Haas, president of Haskris.

Amana Names Seibert

AMANA, Iowa—S. J. (Wes) Seibert, of Lake Bluff, Ill., has joined Amana Refrigeration, Inc. on special assignment with the firm's executive sales staff.

Engaged in appliance sales management since 1929, Seibert held such various positions as export manager, national service manager, and Canadian sales manager before coming to Amana. During World War II he was industrial analyst for the refrigeration and air conditioning branch of the War Production Board.

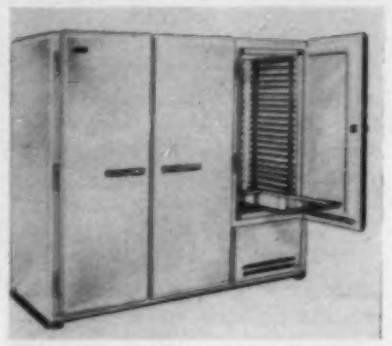
Puffer-Hubbard Announces New Line of 'Streamlined' Commercial Refrigerators

GRAND HAVEN, Mich.—The Puffer-Hubbard Refrigerator Co. has a new line of commercial refrigerators ready for the market, according to A. J. Johnson, president.

The new line, which features streamlined styling and design, includes reach-in refrigerators, salad refrigerators, dough retarders, pass-thru refrigerators, upright storage freezers, baker freezers, and combination two-temperature refrigerators.

Capacities range from 22 cu. ft. to 96 cu. ft. and most models are available in a choice of exterior and interior finish.

The "P" line has white porcelain exteriors and interiors. The "SS" line has stainless steel exteriors and interiors. The "SP" line has stainless steel exteriors and white porcelain interiors. The "SA" line has a stainless steel front and aluminum ends, top, back, bottom, and interiors.



NEW Puffer-Hubbard salad refrigerator or dough retarder.

The 34-in. deep models have a newly designed Puffer-Hubbard mullion coil cooling system with dual fans circulating the air to maintain positive temperatures in each section.

The 27-in. and 31-in. deep models are equipped with the patented Puffer-Hubbard "Grad-U-Matic" air conditioning system which has been standard in the past.

Hardware and door hinges are heavy-duty commercial type with adjustable features designed to open door swing within width of refrigerator. Door locks are heavy-duty commercial type with cylinder locks optional. Door mullions are constructed to eliminate exterior sweating.

Shelf area is designed for adjustable shelves or bun pan and salad tray slides. These features can be changed in the field.

Condensing units have slide-out feature for quick cleaning and service. All self-contained equipment is chart tested. Each refrigerator has an individual running chart attached to the inspection ticket.

Automatic elimination of condensate from the coil is an optional feature that eliminates the need for drain connection. Water is electrically evaporated.

American Stores Chain Plans 50-60 New Stores

PHILADELPHIA — American Stores Co., said to be the fourth biggest food chain in the country, plans to open between 50 and 60 new markets during the current fiscal year, according to the firm's annual report.

During the fiscal year ended March 31, the chain opened 47 new markets, compared with 34 in the preceding year. In the same period, Acme closed more than 170 smaller stores, including 101 service-type operations. This left the company with 219 service stores.

In copper tubing—why is PENN the Bright Spot?

uniform quality

The physical characteristics of unvarying PENN quality tubing is vigilantly maintained throughout the model year on each part number from the first to the very last. Order by order, shipments of high quality PENN tubing meet rigid inspection standards on time and this combination pays off all along the line.

dependable service

Of equal importance with the quality of the product itself is the reliability of the suppliers word. The ability of PENN to convert orders into basic, believable delivery promises that are faithfully met, has earned for PENN the reputation of Dependability spelled with a capital "D"

friendly cooperation

The third most important ingredient to a top-notch association is flexibility of procedure known as cooperation. When the unusual occurs and special needs call for a broader interpretation of the pattern, the "Penn Plus"—friendly cooperation, takes over. It's at this time that PENN proves to be a friend indeed.

Nothing quite matches this Penn trio. PENN uniform quality—PENN dependable trustworthiness and PENN friendly cooperation. Get to know them and you'll agree. Write direct or contact the representatives at right in your area listed in the Yellow Pages of the Phone Book under Tubing.

BOSTON
CLEVELAND
CHICAGO
DETROIT
DAYTON
MANHATTAN
PITTSBURGH
ST. LOUIS
ST. PAUL

PENN BRASS & COPPER COMPANY
ERIE, PENNSYLVANIA TELEPHONE 3-1164

PRESSTITE
Insulation Adhesives

- quick, permanent adhesion
- long-lasting high bond
- excellent resistance to temperature extremes
- brush, spray or flow

See your wholesaler or WRITE

PRESSTITE-KEYSTONE
Engineering Products
COMPANY
39th & Chouteau St. Louis, Mo.
101 E. Ontario Chicago, Ill.

For more information about products advertised on this page use Information Center, page 32.

Gas Air Conditioning

It's Just Getting Ready To Claim Larger Share of Market, Says Utility Man In Summarizing Advantages of Gas System

By C. Dale Mericle

CHICAGO — "Gas air conditioning is just getting ready to claim a larger share of the large potential market of residential, commercial, and industrial cooling," contends R. H. Combs, air conditioning representative of Oklahoma Natural Gas Co.

A brief outline of the gas industry's plans along these lines was presented by Combs at the first technical conference sponsored by the National Warm Air Heating and Air Conditioning Association which was held here recently.

Four manufacturers are currently producing gas-engine driven air conditioning units, two others make absorption systems, several others are developing gas air conditioners, and the "American Gas Association is sponsoring 13 research projects this year covering several types of gas units, including a gas heat pump," Combs summarized.

Why Should Gas System Be Considered?

"Why should gas-fired summer cooling equipment be used or even be considered in an air conditioning application? Where gas is used for heating purposes, the existing pipe and service is almost always adequate to meet the demands of a gas air conditioner," he said.

"Too, electric service no heavier than normally installed in a structure, in most cases, is heavy enough to carry the small electric auxiliaries required in the gas installations. In addition, many areas have gas rates which offer substantially lower operating costs to the owner using a gas unit over one of another type," he asserted.

Utilities Seek Summer Load

"The desire on the part of gas utilities to build summer load and summer sales of gas has led to much research and many test programs for various types of gas air conditioners during the last 25 years. Both absorption and gas engine-driven compression as well as steam turbine-powered units are not at all new," Combs reminded the conference.

"Internal combustion gas engines have pulled uncounted comfort cooling machines, most custom-built jobs. However, four manufacturers are engaged in producing complete engine-driven condensing units today on a production basis.

"One type of equipment employs a gas engine directly coupled to a radial compressor," he explained. "Capacities in various models are from 20 to 75 tons with automatic capacity reduction in each model ranging to a low of approximately 4 tons. This is accomplished by first automatically slowing engine speed and then by unloading cylinders on the compressor.

"Another unit is powered by an air-cooled gas engine and uses a V-type 4-cylinder compressor," Combs continued. "The in-line assembly of compressor, starter, engine, and condenser fan is a completely factory-assembled water chilling machine. Three and 5-ton models are in limited production for the first time this year following several years of accelerated research and field testing. A wet bulb type condenser is an integrated part of the acoustically lined engine-compressor compartment.

"A third type utilizes an industrial engine and a compressor in the 3, 5, and 7½-ton models. The engine belt drives both the compressor and large fan for the air-cooled condenser. Engine speeds are lower than the other three units mentioned," Combs said, "but gas consumption is somewhat higher due mainly to the additional engine load imposed by the air-cooled condenser fan.

"In the fourth condensing unit both engine and condenser are water cooled. Like the other small capacity units, this has been designed for approximately 10,000 hours usage before major engine overhaul is required. Available in 3 and 5-ton sizes, it is extremely quiet and is economical in its fuel consumption," Combs declared.

"At least two companies are manufacturing absorption units. One has 2, 3, 5, and 25-ton models, and has quite recently introduced a new 3-ton unit which uses the same single coil for its heating and cooling cycles. Another's units range in size from 100 to 700-ton water chillers. A small tonnage residential unit has been announced, however, to be field tested this summer," Combs said.

Operating Cost Data

Operating cost data on a 3-ton gas engine air conditioner which is undergoing a fatigue test was disclosed by Combs. Installed during the 1955 season in a Tulsa, Okla. residence, the unit had operated 6,000 hours, part of which was for actual cooling of the house and the balance under an artificial load.

Total operating cost for 6,000 hours was $297.80, according to Combs, which is equivalent to $49.63 for 1,000 hours, or a rate of $.0165 per ton-hour.

Normal cooling season in Tulsa, he explained, is 2,000 hours.

Break-down of operating costs for 6,000 hours was given by Combs as follows: 454,000 cu. ft. of gas, $227; 18 gals. motor oil, $13.50; 66,000 gals. water, $29.70, and electric power, $27.60.

The engine was stopped and started 3,960 times during this time, and the spark plugs were replaced twice, Combs explained.

"Normally the plugs should be changed every season," he said.

R. M. Rosebrough Dies

ST. LOUIS—Robert M. Rosebrough, a former district sales manager for Mueller Climatrol, died of a heart ailment here on May 21. He was 73 years old.

Rosebrough, who retired two years ago, was a past president and life member of the American Society of Heating and Air Conditioning Engineers.

mark of
Dependable Products
Dependable People

Like a magnet, the Marley line attracts suppliers across the nation who want to offer their customers the very best in packaged water cooling towers. Marley is likewise attracted and bound to these suppliers because of their keen sense of customer responsibility and their reputation for dependable and conscientious service.

That is why you can be sure to receive the soundest advice, best service, and most dependable water cooling products wherever you see the sign that tells you Marley cooling towers are available for over-the-counter delivery. You can be sure, too, that those who display it stand 100% behind their cooling towers, just as Marley backs its suppliers and products.

So see your local Marley supplier soon in any of 300 cities. His know-how will save you time and money; his line of Marley cooling towers is the world's most complete for air conditioning and refrigeration.

The Marley Company
Kansas City, Missouri

MARLEY

RESIDENTIAL cooling coil by McQuay can be added with remote condenser and compressor, utilizing existing ductwork, to forced draft furnace to give air conditioned summer comfort.

REMOTE condenser offered by McQuay, Inc., designed for use with forced draft furnaces.

McQuay Cooling Coil, Remote Condenser Is for Use with Forced Draft Furnaces

MINNEAPOLIS — McQuay, Inc. has announced a new residential cooling coil and remote condenser which "makes waterless central station air conditioning economical in homes."

Designed for use with forced air furnaces, "the components (plus a compressor) combine with existing ductwork to provide clean, cool, dehumidified air to every room in the house," the company said.

"For homes now equipped with gravity feed furnaces the equipment can be adapted by adding blower fan and filters."

Introduced for the first time this year by McQuay, the new components "are designed to replace individual room air conditioners with one central unit for air conditioned summer comfort," the company declared. "The cost is competitive with, or less than individual room-type equipment of the same capacity.

"McQuay cooling coils (residential evaporators) are available in 2, 3, and 5-ton sizes for 'Freon-12' or 'Freon-22' refrigerants. (Average 5-room home requires 3-ton capacity).

"Horizontal air flow evaporators are made for insertion in ductwork on either the return or discharge side of the furnace. The vertical airflow model installs in the plenum of a conventional or counterflow furnace.

Coleman Trains 417 Servicemen, Engineers on Gas Conditioning

WICHITA, Kan.—Four hundred and seventeen gas utility engineers and servicemen have been trained in installation and service of the Coleman gas motor air conditioning unit at seven regional training schools.

Directed by Tony Castello, technical service manager, and Irving Paeff, technical service engineer, each ran three days.

Utilities participating as hosts were the Lone Star Gas Co., Dallas; Oklahoma Natural Gas Co., Tulsa; Atlanta Gas Light Co., Atlanta; The Ohio Fuel Gas Co., Columbus; Southern California Gas Co., Los Angeles; Brooklyn Union Gas Co., Brooklyn; and Iowa Power & Light Co., Des Moines.

As explained by Clifford E. Hall, Coleman utility operations manager, the purpose of the schools was "to provide a strong nucleus of trained installers and servicemen upon which we can develop in the future as production of the gas motor unit expands."

A second series of schools will be conducted next year. After conclusion of these, Coleman expects that there will be 2,000 to 3,000 men in the industry capable of installing and servicing gas motor air conditioning.

Production of the gas motor unit is being limited in 1956 to the number that can be competently installed and serviced by trained personnel in the field.

To students in the seven schools, Castello referred to the current program as a "full field test to the consumer." He said Coleman expects to feel free to go into mass production soon.

Hall said there now are installations in 41 states and Canada. All units were distributed by allocation.

"Every company that took a unit this year agreed to send at least one man to one of the regional schools, where thorough instruction was given in installation and maintenance.

"We have found that the entire industry is in complete agreement with our company's thinking that thorough training is an essential to successful introduction of this relatively new equipment.

"Each man attending the school was provided with a very complete installation and service manual. This covers application of the equipment to almost any situation.

"Included in the manual is the first formula ever presented to enable the user to determine the ability of any existing furnace blower and warm-air distribution system to handle the required air conditioning load.

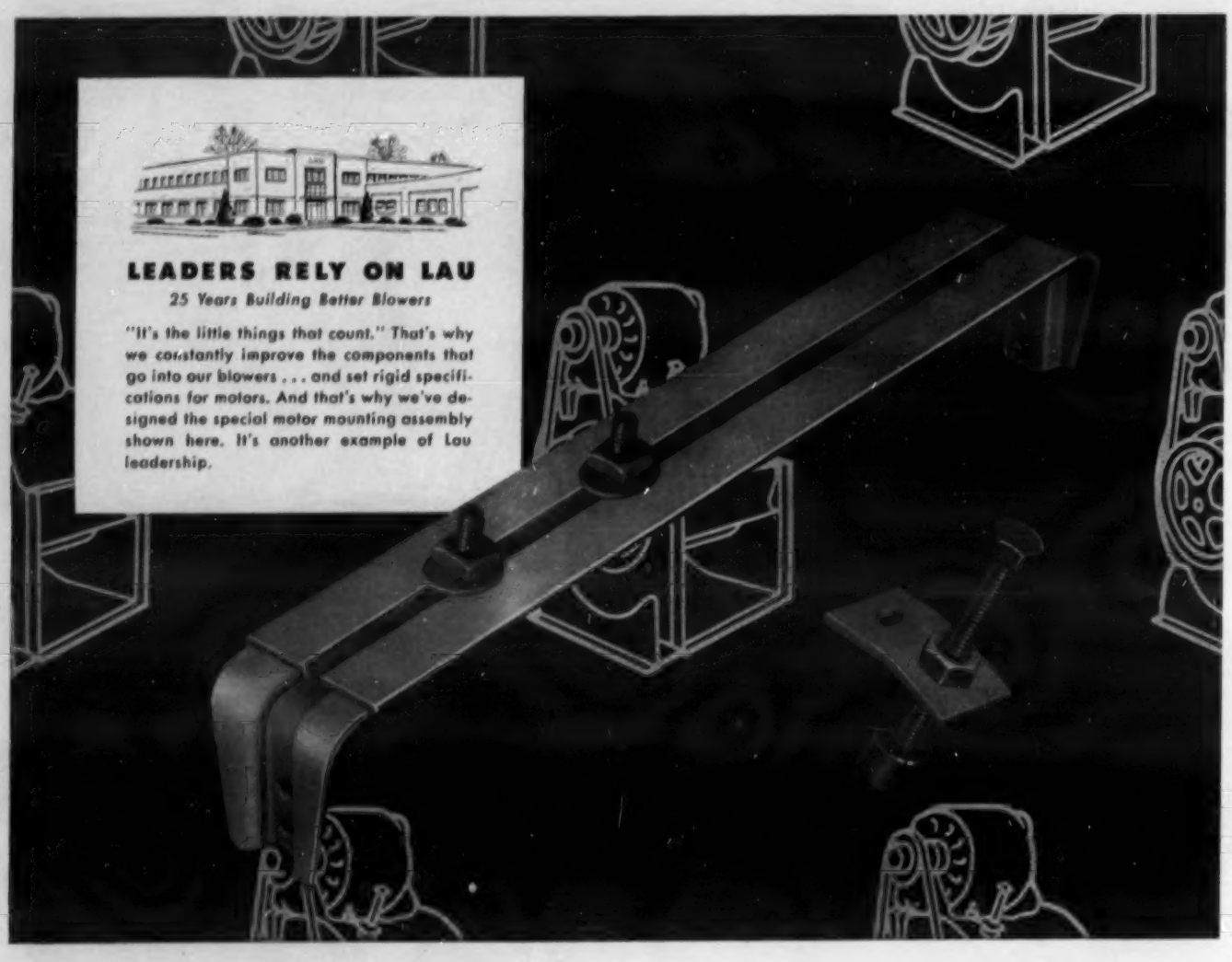
"We have made available all of the teaching aids to all who attended the schools, so that each man is a potential trainer."

Castello explained at the schools that Coleman prefers that the utilities and affiliated dealers make their installations this year with as little help as possible from the manufacturer.

He said Coleman engineers will check installations on regular rounds "and, of course, will assist immediately as trouble-shooters if serious problems come up."

Seott Named by B-W

CHICAGO—Thomas H. Scott has been appointed branch manager of B-W Acceptance Corp.'s newly established offices at Charlotte, N. C.


LEADERS RELY ON LAU
25 Years Building Better Blowers
"It's the little things that count." That's why we constantly improve the components that go into our blowers . . . and set rigid specifications for motors. And that's why we've designed the special motor mounting assembly shown here. It's another example of Lau leadership.
MUSCULAR MOTOR MOUNTING
This Exclusive Lau-developed Motor Mounting Bracket and assembly is a heavyweight champion. The metal is of double-thickness for brute strength (it is, in fact, stronger than the bolts that hold it in position). And it is the most flexible mounting ever built . . . with a patented feature of complete adjustability for mounting motor clockwise or counter-clockwise without removing the mounting. Two holes are provided in the ends for additional center-distance adjustments between blower and motor shaft, and motor with mounting bolts can be adjusted laterally in an infinite number of positions for any motor. The tailpiece assembly, designed by Lau, has been accepted by the industry as the method to use for maximum belt-tension adjustment and is provided with a rubber insulator. You can depend on LAU for quality. Write Dept. M today.
25TH ANNIVERSARY
LAU
THE LAU BLOWER COMPANY
2000 Home Ave. • DAYTON 7, OHIO
Other plants at Kitchener, Ont., Canada, and Azusa, California
LB-7, 56
SERIES "A" BLOWER
ELECTRO-WHEEL BLOWER
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PANEL FAN
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WORLD'S LARGEST MANUFACTURERS OF AIR-CONDITIONING BLOWERS

Fast Delivery COILS
TOP QUALITY
EVAPORATOR
CONDENSER
WATER STEAM
1 TO 50 TONS 2 TO 8 ROWS
Tubenfin COIL CO.
8035 HARTFORD, HOUSTON 17, TEXAS

For more information about products advertised on this page use Information Center, page 32.

SLANTS on Service

11-Point Check for Home Conditioners

Eleven points for a serviceman to check in an annual inspection of a residential air conditioner were outlined recently by Burton T. Kehoe, residential air conditioning manager for Carrier Corp.

They are:

1. Lubrication of fan shafts and fan motors.
2. Checking of filters for cleaning or replacement.
3. Cleaning of coil, drip pan, and heat exchanger.
4. Adjustment of burners, whether oil or gas.
5. Checking of controls and adjustment if necessary.
6. Complete checkup of refrigeration system, including refrigerant, oil and operation.
7. Cleaning of blower wheels.
8. Check of safety controls.
9. Touching up cabinet if necessary for corrosion resistance.
10. Cleaning and flushing of condensate drain.
11. Check of water lines into unit (where water-cooled) for adequate flow.

Carrier Conducts First Of Conditioning Schools For Gas Utility Men

SYRACUSE, N. Y.—The first of several "schools" conducted by Carrier Corp., to provide information for gas utility sales engineers on large gas-powered air conditioning systems, was held here recently.

Purpose of the course is to equip men of the gas industry with the necessary techniques for selling and selecting the proper machine for applications where gas is the principal energy source.

Some 30 representatives from major gas utilities across the country were invited to attend the two-day workshop. Additional classes will be held soon.

The program is designed to cover "big" air conditioning and refrigeration systems for such important markets as multi-story office buildings, department stores, hotels, hospitals, apartment buildings, industrial plants, other large structures.

Among Carrier products for these air conditioning applications is a new line of absorption refrigerating machines featuring automatic "pushbutton" control. Gas may be applied as the heat source to produce the steam or hot fluid on which the absorption machine operates. Chilled water from the cooling device may be used for air conditioning or process cooling.

Where gas boilers are already installed for winter heating or manufacturing purposes, the steam or hot water can be employed to power summer cooling equipment as well, Hoffmann pointed out. In addition to the absorption machine, a turbine-driven centrifugal refrigerating unit may be used if high pressure steam is available.

Special instruction will be devoted to operation, service, maintenance, sales features of the units.

Harvill Acquires $1,000,000 Site For Plant Expansion

LOS ANGELES—A 30-acre site, valued at more that $1,000-000, was recently acquired by the Harvill Corp. here for an expanded plant, Richard Clevering, president of Harvill, announced recently.

Harvill Corp. introduced a new lightweight, compact refrigeration compressor at the industry exposition in Atlantic City last November.

It is also the largest die casting plant on the West Coast, it was noted.

The new site, which already contains some buildings, is located in Santa Ana between Harbor Road and Newport Ave. Harvill expects to occupy it early next year, the announcement concluded.

Acme INDUSTRIES, INC.
JACKSON, MICHIGAN
manufacturers of
QUALITY
air conditioning and refrigeration equipment since 1919

ACME AIR CONDITIONING REFRIGERATION
recognized industry-wide

WRITE FOR CATALOGS
Please request by product name

a VIKING tradition

Planting a marker or banner on the threshold of a new land was a Viking Tradition. The flag was more than a symbol of conquest — it was a tribute to the indominitable Viking spirit of pioneering. It took brave men with strong convictions to venture into unknown seas in the face of fear and superstition, but through their pioneering new worlds were opened!

Today in the commercial refrigeration and air conditioning industry, a new VIKING has established a tradition for pioneering. Through precision production methods, VIKING has created new standards of quality . . . and VIKING craftsmen, true to the tradition of their namesakes, work to continue producing the finest in copper tubing — a tubing worthy of the name VIKING!

VIKING copper tube co.
CLEVELAND 10, OHIO

PRECISION DRAWN SEAMLESS COPPER AND ALUMINUM TUBING

EXTRA STRENGTH
The proper kind of strength and ductility is vital in tubing used for refrigeration and air conditioning purposes. Copper tube possesses these qualities to a far greater degree than other types of tubing. Its uniform temper assures trouble-free fabrication.

EXTRA FLEXIBILITY
Viking Copper Tube is soft and pliable, yet exceedingly rugged. It saves time and labor because it can be coiled, formed, flared and expanded quickly without danger of fracturing or splitting.

CLEAN AND DRY
Viking Copper Tube is triple-sealed at the ends, stays dry and absolutely dirt-free. The seal is made to pass through any opening large enough for the tube itself. It's clean . . . it's bright . . . it's dry!

For more information about products advertised on this page use Information Center, page 32.

They'll Do It Every Time

by Jimmy Hatlo

THIS IS FOR AN AD IN THE TRADE MAGAZINES-- TYPICAL WIDGET WORKER--THAT'S IT--YOU'RE HAPPY! YOU LIKE YOUR JOB--TAKE IT....
YO-HO! OH, MARLIN-- HAVE YOU GOT YOUR PANCAKE MAKEUP AND YOUR EYELASHES ON?
"TYPICAL WIDGET WORKER!" I LIKE THAT--THEY PICK THE WORST GOLD-BRICKER IN THE SHOP....
THAT GUY FROM THE AD DEP'T THINKS HE'S CECIL B. DIRECTING AN EPIC--
HE LIKES HIS JOB, MY FOOT! HE'S ALWAYS THREATENING TO QUIT AN' GO BACK HOPPING FREIGHTS!
P.S. AND THIS IS THE HARDEST WORK HE'S DONE SINCE HE'S BEEN HERE-
THANKS AND A GOLD-MINE TIP TO WM. McCLAGRY, 620 WHITE PLAINS AVE., BRONX, N.Y.

Crumbling Barriers To Industrial A-C

"Breaking through the barrier" is fashionable phrase-making these days. Headlines tell of breaking the "Sonic Barrier" and the "Heat Barrier" in flight. An oil company proclaims it has broken the "octane barrier" in the production of gasoline.

Actually that phrase is somewhat "old hat" in the field of specialty selling. A particular segment of a market which has resisted the purchase of a particular product for quite a while is generally regarded as constituting a "sales barrier."

Usually sales barriers are artificial, and sometimes they result from an "unwritten agreement" among members of that market.

The air conditioning industry has run into a number of such "barriers." Big department stores, in some cities, represented a "barrier" for many years. But the last ramparts in this segment of the business are crumbling rapidly, as well they should.

Last of the "barriers" to weaken is the big factory market. For some industrial processes air conditioning is a "must." In most cases, though, factory owners have argued:

(1) Present equipment isn't satisfactory for a particular job in *their* plants.

(2) They can't afford it.

Both objections are nonsense.

Industrial air conditioning salesmen today can prove (1) that they have equipment to do a good job for any kind of industrial establishment; (2) that no processor can afford *not* to have air conditioning.

Earlier this year the NEWS reported that Daroff & Sons, Philadelphia clothing manufacturer, would put the "first completely air conditioned clothing plant in the world" in operation this summer. That clothing firm contracted to install 83 General Electric packaged air conditioners, totaling 1,100 tons of cooling capacity, in its new plant. The NEWS has published other reports recently of complete plant air conditioning for employe comfort and to increase productivity.

In the South there are several cities where all the plants in the area are on the verge of going completely air conditioned. If the pattern followed by other types of air conditioning is repeated, this trend will move northward year by year, and rapidly.

"Reasons why" many of these Southern factories are ready to take the plunge can be summed up in one word: SURVIVAL. Many of them are producing on a contract basis, with perhaps one or two customers taking their entire output. Because they work on a narrow cost margin (based on the productivity factor) "summer slump" slowdowns and absenteeism in non-air conditioned plants can turn black figures into red on their balance sheets.

To get down to positive figures on what air conditioning really "costs" a plant operator, listen to Charles V. Fenn, Carrier Corp. vice president.

"The actual cost of air conditioning turns out, generally, to be relatively low when reduced to the cost per piece produced, or the cost per hour, or the cost per person. To illustrate this—

"Most hosiery plants are air conditioned, and have been for years. Actual figures in this industry show that the owning and operating costs of a hosiery plant (related to one pair of the finished products) amount to one-third of one per cent per pair, or three mills per pair. This assumes production on a two-shift basis and a reasonable amount of down time.

"Also an analysis of at least one job showed, due to less maintenance on machines, less down time, etc., savings per year of up to 80% of the total investment required to install air conditioning in the first place. These figures are fantastic, but is it any wonder that with figures like this available, almost all hosiery plants today are air conditioned?

"Figures also are available on the cost of air conditioning per employe in an office building and the increase in efficiency that is necessary in order to pay off the cost. The average annual owning and operating cost of air conditioning in an office building is $60 to $70 per employe. Assuming an average salary level of approximately $4,500, the increase in employe efficiency to offset this cost is only 1.3% to 1.6%."

In short, it pays to air condition a factory.

We are paying increasing attention to what motivates the consumer to buy but we are not paying enough attention to what motivates the salesman to sell. More and more salesmen will be called upon to give advice and to serve as consultants on the use of products. This means we'll have to develop superior salesmen and give them greater incentives.—LEO M. CHERNE, Exec. Director, Research Institute of America.

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AIR CONDITIONING & REFRIGERATION NEWS

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'The Conscience of the Industry'

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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—*Charles A. Dana.*

OFF THE CHEST

Sherer-Gillett Co.
Marshall, Mich.

Editor:

As you know we have been carrying a rather elaborate scholarship for one of the graduating senior boys of the Marshall High School at Ferris Institute in refrigeration technology. This scholarship carries a cash award of $1,200 for a two-year course, plus summer employment at the plant.

We think you might find a story in the advance plans of Ferris in their new Trades & Industry Section and particularly in their new and elaborate plans for the refrigeration school.

As you know, Ferris is now state owned and their expansion program for their various technical courses, plus their regular college degree courses is elaborate.

As we have so few good refrigeration schools in the country it is our belief that more people should get behind this development and more people in our industry should offer scholarships for deserving young men. The success of all of us depends upon the caliber of the people that we bring into our industry and we for one firm have come to the conclusion that we must assist in every way possible.

We have donated equipment to their lab and we have found that Kelvinator of Detroit has done the same thing.

Graduation exercises are coming along very shortly and the first of our scholarship students will have completed his two-year course at that time. We find him well trained and are only happy that we can bring him into the organization. Another scholarship student has completed his first year and we have just selected the third and we are getting really good boys.

J. H. COOLIDGE,
President

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only $6.00 per year, 52 issues (U.S. and Canada). Foreign: $10.00 per year.

AIR CONDITIONING & REFRIGERATION NEWS 6-18-56
450 W. Fort St., Detroit 26, Mich.
Gentlemen: Send the NEWS every week for one year. ☐ $6.00 enclosed ☐ Bill me ☐ Bill Company.

Name.....
Company.....
Street.....
City ..... Zone ..... State .....

NEW Mueller Climatrol individual room fan coil air conditioner was designed for use in multi-unit buildings.

4-Row Coil Individual Heating, Cooling Unit Offered for Multi-Unit Bldgs.

MILWAUKEE — Mueller Climatrol, division of Worthington Corp., recently expanded its industrial buildings line of heating and cooling equipment with the addition of type 60 and 61 individual room fan coil air conditioning unit.

Designed especially for hotels, hospitals, motels, offices, and other multi-unit buildings, the 60/61 is for use with a centrally located heated and chilled water source, it was pointed out.

One unit is located in each room and contains a four-row coil for both heating and cooling plus twin centrifugal circulating fans, it was added. New units also provide individual room control, fresh air circulation when desired, and filtration of both outside and room air.

Two styles of the room conditioner are available. Model 60 is a recessed type with open ends for installation in an alcove, wall, or with cabinet bases. The 61 is completely enclosed in a beige baked-on enamel casing for use flush against a wall or under a window. Both coil units are supplied in fan capacities of 200, 300, 400, or 600 c.f.m.

Other features claimed for the new air conditioner are a four-row, high capacity coil with low pressure drop; dual low speed aluminum blowers; three-position fan speed switch adjustable to room occupant's desires; permanent, cleanable filters, accessible from front; and entire cabinet slips off chassis for installation or service. Fan coil may be installed with only water supply, return, and condensate drain connections, it was noted.

30-Ton Package Units To Condition 10 New Food Fair Markets In East

DAYTON—It has been announced by the Philadelphia office of Food Fair Stores, Inc., that the company has contracted for the purchase of 300 tons of air conditioning equipment produced by the Airtemp Div., Chrysler Corp. The equipment consists of ten 30-ton Airtemp packaged air conditioners.

Discussing the contract, an official of the east coast firm, the nation's seventh largest food chain, stated that the purchase represents a continuation of Food Fair's customer service program.

He commented, "Food Fair is constantly striving to provide stores in which Mrs. Homemaker may do her shopping comfortably."

All the sizeable air conditioners are slated for use in new Food Fair supermarkets. A pair will be installed in markets currently under construction in Stamford, Conn. and Pearl River, N. Y.

Food Fair, operating 240 modern supermarkets from Connecticut south through Florida, is presently in the midst of a $55 million expansion program. The program's goal is 50 new stores by April, 1957.

Airtemp Names Dronen

DAYTON — F. J. Laughna, director of regional operations for the Airtemp Div., Chrysler Corp., has announced that Gordon Dronen has joined the company's Chicago-region sales staff for the Airtemp line of commercial air conditioning.

Central Year-Round System To Condition 34-Story Office Bldg.

PITTSBURGH—The 34-story Koppers building, headquarters for Koppers Co., Inc., will be completely air conditioned, it was announced here recently.

George M. Walker, executive vice president of Koppers, said that work would begin immediately on the major improvement program. Contract has been awarded to the Carrier Corp. for installation of a centralized year-round air conditioning system. The Peter A. Loftus Co. of Pittsburgh will be consulting engineer.

At the present time 45 firms, in addition to Koppers, occupy space in the building. Winter air conditioning with the new system is expected to be in operation next October while summer air conditioning will be in operation by May of 1957.

1,400 YEAR-ROUND OUTLETS TO REPLACE RADIATORS, SILLS

To install the Carrier "Conduit Weathermaster" air conditioning system all radiators and window sills in the building will be removed and replaced by more than 1,400 year-round air conditioning-heating outlets.

Occupants of the building will be able to select the temperature they desire in the rooms where they are located. Conditioned air will come from three central apparatus stations—two on the 10th floor and another on the 21st floor.

2 CENTRIFUGAL UNITS HAVE COMBINED CAPACITY OF 1,000 TONS

Chilled water in summer and warmed water in winter will be supplied through the air conditioning system. Combined capacity of two centrifugal refrigerating machines will be 1,000 tons.

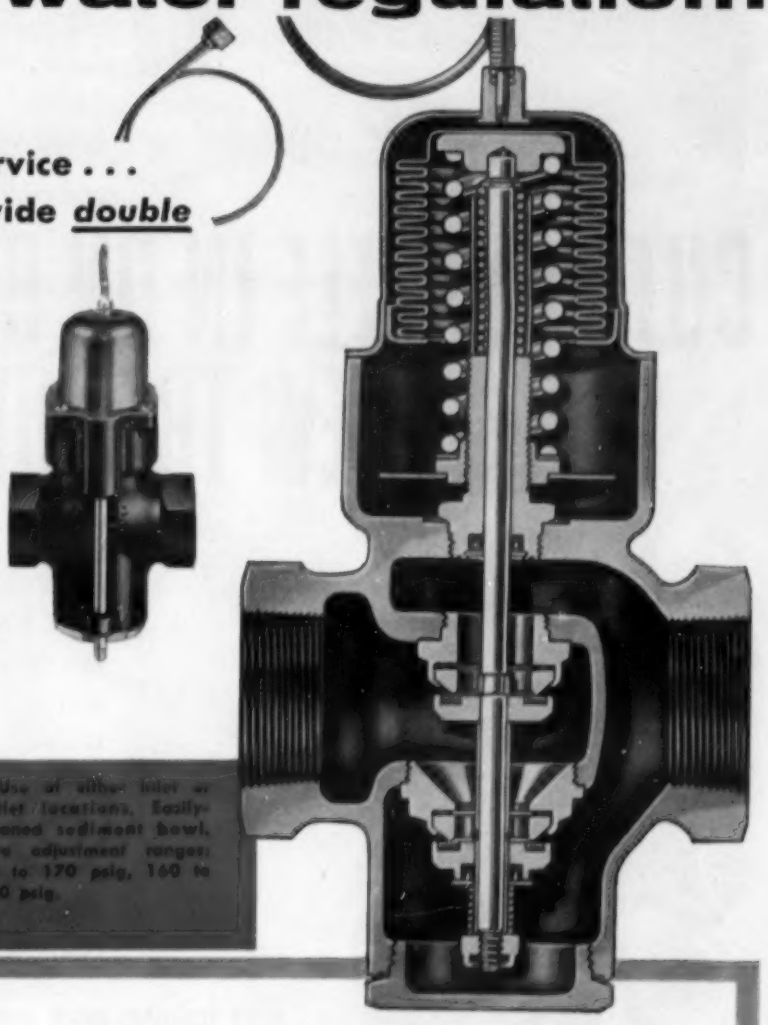
A feature of air conditioning the building with its 289,000-sq. ft. floor space will be the specially-built fabricated enclosures for the individual modular-sized room units. They will be in wood-grain finish.

A-P *Exclusives give you*
chatter-free water regulation!

Model 65 for 1" and 1¼" service . . . lifetime ceramic seats provide *double protection* against wear

Only A-P offers you the lifetime protection of ceramic seats! And in water valves, this means *maximum resistance to wear and erosion resulting from high water velocities.* You eliminate trouble-some pistons . . . you get chatter-free performance, because valve is *not* affected by inlet pressure.

Add the "any-position" installation . . . the extra compactness . . . easy-cleaning sediment bowl, plus a host of other advanced features — more reasons why Model 65 is right for your next O.E.M. or replacement job!



• Double port eliminates effect of water pressure on valve — makes it completely chatter-free!

• Capacity: 65 gpm at 50 psig (1" valve), 90 gpm at 50 gpm (1¼" valve). For F12 and F22 service.

• Use of either inlet or outlet locations. Easily-cleaned sediment bowl. Two adjustment ranges: 70 to 170 psig, 160 to 240 psig.

SELF-CLEANING, self-aligning valve shoe floats on stem. Bevel design assures clean wipe of seat, each valve cycle. Ends unnecessary call-backs.

Model 65 for ⅜", ½" and ¾" service sliding seat is self-cleaning

And, you get positive shut-off without water hammer! Operation is absolutely not affected by inlet pressure variations. Stays clean despite dirt, lime or sand. You can't beat Model 65 for dependability!

• Operating ranges: F12 — 65 to 200 psig, F22 — 165 to 300 psig. Completely accessible adjusting stem.

• Capacities: 2.0 gpm. Wide application range—simple, compact, bushing-like installation.

• Valve seating: Nylon-plastic bottom. All parts in contact with water are non-corrosive. Brass forged body.

Discover the many advantages of Model 65 water regulating valves yourself — order from your wholesaler, or write:

DEPENDABLE *Controls*
for Air • Liquids • Gases • Refrigerants

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Final NAHB Report Furnishes New Data on Austin Village

When the National Association of Home Builders recently published its final report on the Austin, Texas air conditioned village research experiment as a guide on residential air conditioning for builders, the research committee included considerable data that had not previously been published.

Last week, the NEWS published the highlights of the final report and some of the new data found in it. Here are more details from the 24-page report that are of particular interest to the air conditioning industry.

Copies of the complete report are available from the NAHB at $2 each.

The final Austin Village report declared that two factors are involved in the proper sizing of equipment. These are the heat loss and gain of the house due to design, construction, and occupancy; and the net output of the equipment into the living area.

It noted that the National Warm Air Heating & Air Conditioning Association's tentative third edition of Manual 11 on air conditioning installation produces satisfactory results for calculating heat gain.

As for net output of equipment, it said village tests showed actual output to living area considerably less than the commonly accepted idea that systems deliver 12,000 B.t.u.h. per ton or per stated horsepower.

On water-cooled equipment, based on entering and leaving quantity and temperature (from which B.t.u.h. was determined), the average was 7,900 B.t.u.h. per stated horsepower or 0.66 tons per stated horsepower.

.77 Tons Per Hp. Was the High In Use

High was 9,250 B.t.u.h. or .77 tons per stated horsepower. Low was 5,460 B.t.u.h. or .46 tons per stated horsepower.

Actual output to living area of air-cooled units showed approximately similar results, the report showed.

On installation and use of equipment, the report said that Austin Village studies indicate that for desired constant air motion a non-cycling fan should be used.

For relatively stable humidity conditions, there should be quick draining coils with properly sized compressor so that compressor operates almost constantly, or dual compressors with one in almost constant operation, or a modulating compressor.

The report declared, "Humidity range between on and off cycle of a compressor was traced, in part, to re-evaporation of water condensed on coil. The rate of moisture generation in the house and the rate of moisture migration into the house are other obvious factor to humidity rise during the off cycle of the compressor operation. The test results indicated the desirability of good draining characteristics from the evaporator coil."

With an upflow blower, tests showed a 12% r.h. rise with a vertical coil, and 18% rise with a 45° tilted coil and a 24% rise with a horizontal coil. With a downflow blower, a 19% r.h. rise was noted on a horizontal coil.

Characteristics Desirable To Reduce Initial Cost

To reduce initial cost through design of system and packaging of equipment, the following characteristics are desirable, according to the report:

1. Field installation limited to trades already on the job.
2. Internal wiring factory installed.
3. Preformed air distribution system with integral vapor seal and insulation where required.
4. Plug-in control system.
5. Filter accessible for easy cleaning.
6. Approximately 1⅓ sq. ft. of filter face area per ton.
7. "Freon" charged, factory-installed, where applicable.

Sound Control Measures Desirable for Outdoor Compressors Too

Necessary sound control measures are desirable for compressor units to be installed out of doors as well as units installed inside the house, the report indicated.

"Improvements made by some manufacturers in providing integral sound deadening provide satisfactory answers regardless of location," it asserted.

"One manufacturer whose old and new units gave readings of 54 and 38 decibels, respectively, reported an additional cost of $5 for sound deadening. For a similar result, sound deadening installed in the equipment area by the builder cost $35."

Base Wire Size on Stated Hp. Not Amps

On wire size, the report commented: "Some manufacturers' literature specifies minimum wire size and maximum fuse size. Where not shown on wiring diagram, caution should be employed to base wire size on ampere ratings rather than stated horsepower.

"Part of the high installation cost of the Village resulted from the electricans' confusion concerning required wiring. Wire size based on stated horsepower in one house was a contributing factor to a serious fire."

On controls, it advised a single thermostat with change-

(Concluded on next page)

HOME AIR CONDITIONING DEALERS WANTED!

A leading national magazine reports that 130,000 central units were installed in U. S. homes last year, an increase of 68.5% in one year! This year the sale of home air conditioning is expected to jump to 160,000 units or higher. *There just aren't enough qualified dealers to install that many units!*

CUT YOURSELF IN ON BIG PROFITS WITH YORK'S NEW TRAINING PROGRAM!

Only York, with over 70 years in the cooling field, could bring you such a course! It's designed to get you into the rich residential field *fast*, and to help you get more out of it once you're in. You'll be taught by top-notch factory-trained experts—men who really know air conditioning.

Don't miss this chance to get in on the ground floor of a booming new industry! Call your nearby York Distributor, or mail the coupon today!

York gives you more . . . more training, more quality, more models, more profits!

- York Home Air Conditioners are engineered and factory-assembled for quick, easy installation. Electrical controls pre-wired at the factory.
- Each cooling system *hermetically sealed*. No belts, pulleys or gaskets. No field charging or tubes to run. Oil and Freon sealed in. Your profits don't go down the drain in costly service calls!
- Simple *capillary tube feed* controls flow of refrigerant. No summer-winter changeovers. Nothing to wear out. No tricky expansion valves to get out of order.
- There's a York Air Conditioner for every need . . . waterless and water-cooled, "add on," year-round, gas or oil-fired, remote systems, handsome packaged units. Across the board, York gives you *more!*

York refrigeration air-conditioning

the quality name with the quantity profits

Manager of Sales, Commercial Division, Dept. AC-6
York Corporation, York, Pa.

Tell me how York's new training program unlocks the door to big profits in home air conditioning.

Name_____

Company_____

Address_____

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Filtrine "Taste Master" PURIFIERS for

WATER - COOLERS ICE MAKERS

Stop . . . rust, dirt chlorine taste

. . . service breakdowns due to rust & sludge

Insures service satisfaction for all coolers, ice-makers! Clear, taste-free water . . . crystal ice . . . every day . . . in all locations.

FILTRINE MFG COMPANY

216 W. PROSPECT ST. • WALDWICK, N. J.

For more information about products advertised on this page use Information Center, page 32.

Final Austin Village Report--

(Concluded from preceding page)

over switch as the most practical solution. Automatic changeover devices and other refinements in cooling controls installed in the Village were not used by the occupants, it observed.

On condenser operation, it reported: "At 95° F. outside temperature (representing an average afternoon peak temperature) the water-cooled condensing unit systems showed less average energy consumption per hour than the average for air-cooled units.

"However, tests extending over a two-week period to include lower outside temperatures, especially at night, tended to reduce the differential. The difference between air-cooled and water-cooled operating cost seemed relatively insignificant so far as averages for the two types are concerned."

Over the entire season, researchers found that air-cooled condensing units average 6,342 kwh. and the water cooled 5,230 kwh.

Eliminating variables due to house size, construction, etc., the air-cooled units used 307 kwh. per 1,000 B.t.u.h. and the water-cooled units 273 kwh. per 1,000 B.t.u.h.

Studies showed that perimeter floor diffusers (if unobstructed by furniture) and ceiling diffusers, particularly those located near outside walls, gave the best performance for both cooling and heating, with relatively little variation between best and worst example.

"Performance of high inside wall registers, on the other hand, varied widely," the report advised, "indicating that duct and register design and installation for this type and location of register have more effect on results than other systems."

Only 4 Homes Reported Draft Conditions

Only four of the 22 homes reported draft conditions and these four had high side wall registers, the report asserted.

To aid the designer in planning layout of registers and to aid the dealer in final balancing of the system, the report suggested that register packing instructions include B.t.u.h. output for duct runs of 10, 20, and 30 ft. for all damper positions for heating and cooling.

It also suggested that register damper be easily adjustable with set positions for full open, ¾ open, ¼ open, and closed. Vanes and damper should be designed to eliminate vibration noise.

Both perimeter floor and ceiling register locations require "Spider" duct systems, it asserted.

'Comfort More Important Than Equipment Efficiency'

The report concluded that "comfort is more important than efficiency of the equipment, but both are necessary for economical residential air conditioning.

Both single central and multiple return air grilles were used in the Village study. No difference in comfort or draft characteristics were noted between the two types.

"Thus," the report declared, "for the 1,200 to 1,400 sq. ft. single story houses in Austin, the single central return system is satisfactory. It should not be assumed that a single return air grill will be satisfactory for split level, 1½, or 2-story houses.

Studies were made with no fresh air, 10% fresh air, and 25% fresh air introduced into return plenums. The occupants noticed no differences, thus indicating that for the type house and occupany studied, no fresh air provision need be made.

Normal Infiltration Supplied Fresh Air

Apparently an adequate amount of fresh air for physiological needs was supplied by normal infiltration, doors, etc.

Commenting on heat gain through slab floor on grade, the report found no measurable heat gain except at the edge of the slab joining porch, carport, or terrace exposed to sun.

"In those cases, 1-in. edge insulation, wood floor over slab, or carpet over slab eliminated the problem as far as cooling is concerned."

The NAHB report lists the sponsors of the project and provides a plat plan of the Villiage, it was noted.

Trane Names Marshall Development Engineer

LA CROSSE, Wis.—The Trane Co. has announced that William A. Marshall recently joined the staff of the company's Product Engineering Dept. as a development engineer.

A 1940 graduate of the University of Colorado, Marshall has a Bachelor of Science degree in mechanical engineering. His professional engineering experience totals 10 years, of which the last five were spent in the capacity of chief engineer for a prominent southern manufacturer of heating equipment, the announcement further stated.

According to R. E. Lucey, vice president and manager of engineering, Marshall has been assigned to do work in connection with the company's development program on packaged air conditioning systems.

Gibson Names Cannon Conditioning, Heating Distributor In S. C.

GREENVILLE, Mich. — Appointments of Cannon Distributing Co., Charleston, S. C., and Machinery Sales & Service Co., Inc., Jackson, Miss., as distributors of Gibson residential and commercial air conditioning and heating equipment were announced recently by Earl Palmer, manager of Gibson Refrigerator Co.'s Air Conditioning & Heating Div.

Cannon Distributing will cover the entire state of South Carolina. It will continue as a distributor of Gibson appliances. Principals of the company are N. L. Cannon, president; W. T. Cooper, vice president; and J. D. Soffera, treasurer.

Machinery Sales & Service will cover all Mississippi.

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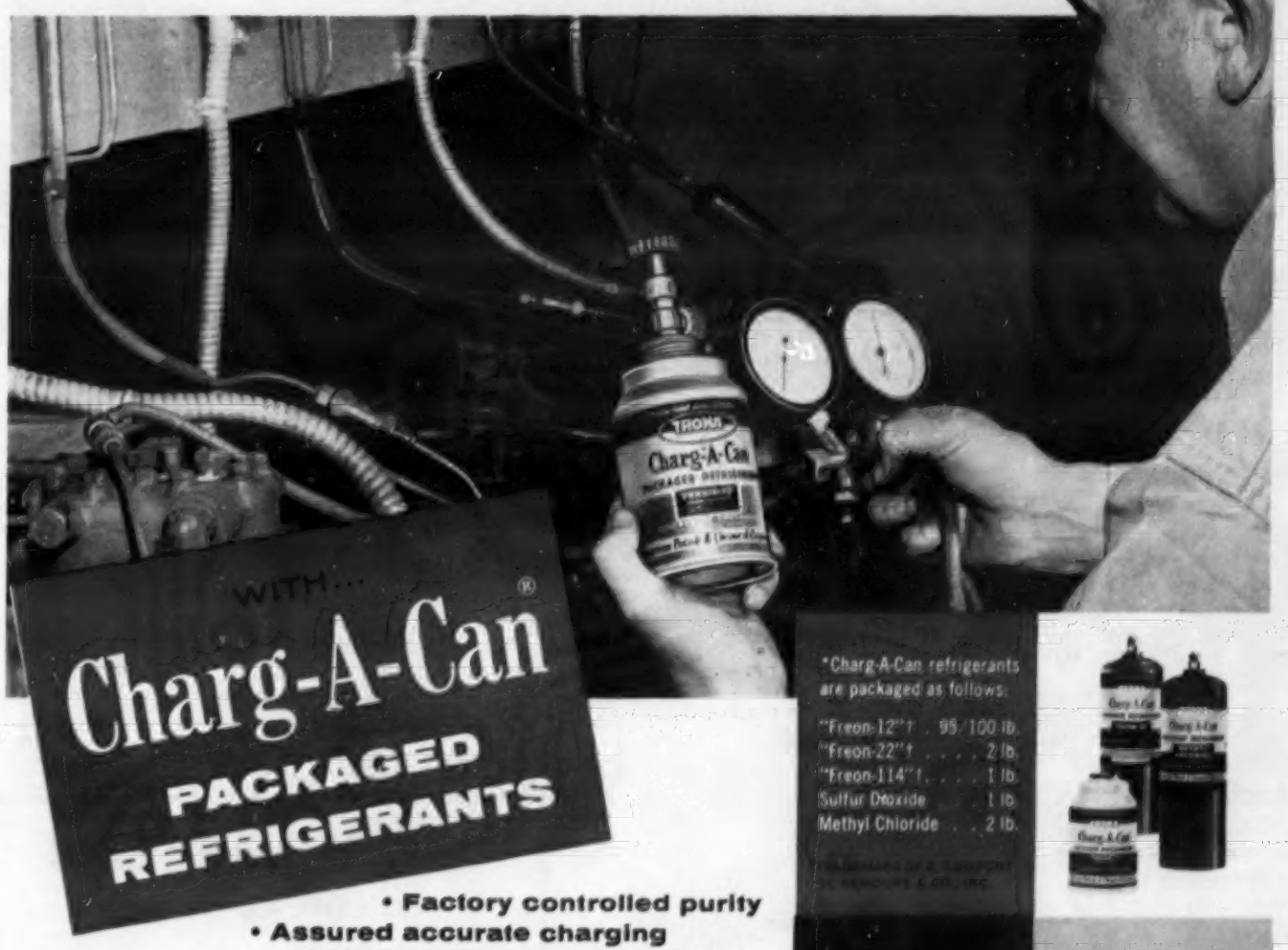


WITH... Charg-A-Can® PACKAGED REFRIGERANTS

• Factory controlled purity
• Assured accurate charging
• No cylinders, no deposit

There's never a doubt when you use American Potash & Chemical Corporation's accurate, dependable, and economical Charg-A-Can packaged refrigerants.* Dependable *quality* and positive *quantity* are both assured because Charg-A-Cans are filled under carefully controlled factory conditions, with material expertly analyzed for purity and moisture content. Service efficiency is increased because Charg-A-Cans save time, eliminate waste, do away with costly charging racks and cut down on heavy storage and transportation requirements. Stock-up on Charg-A-Cans today and watch service profits soar!

*Charg-A-Can refrigerants are packaged as follows:

"Freon-12"†	95/100 lb.
"Freon-22"†	2 lb.
"Freon-114"†	1 lb.
Sulfur Dioxide	1 lb.
Methyl Chloride	2 lb.

For your convenience, Charg-A-Cans are available in six-pack containers for greater ease in handling, stocking, display.

Stocked by refrigeration wholesalers everywhere.

TRONA

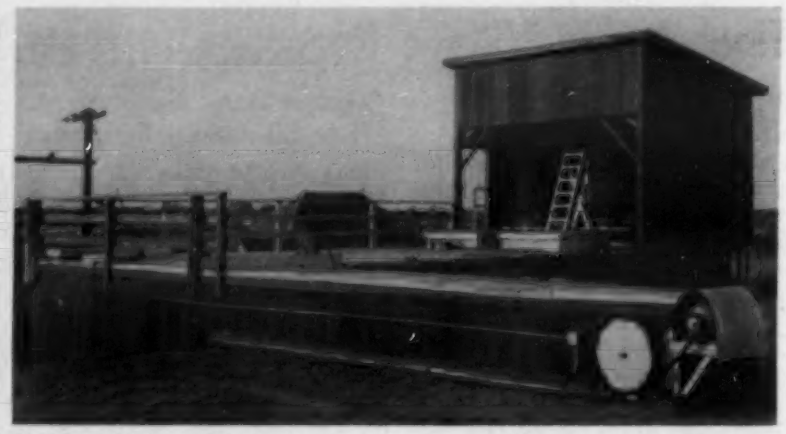
REFRIGERATION DEPARTMENT
American Potash & Chemical Corporation
3100 EAST 26TH STREET, LOS ANGELES 23, CALIFORNIA 99 PARK AVENUE, NEW YORK 16, NEW YORK

For more information about products advertised on this page use Information Center, page 32.

Automated Poultry Processing Plant Conveys 40 Tons of 25° Flake Ice Daily Where Needed for Chilling, Shipping Birds

FLAKE ice for Texas poultry plant is produced at rate of 40 tons in 24 hours and delivered by automatically controlled conveyor system.

MACHINE room is located directly below ice storage bin. Two York ammonia machines and evaporative condensers (extreme left) supply refrigeration.



NORTH STAR ice makers are located above storage bin. Automatic rake in bin pulls flake ice to flight conveyor (note chain drive) which delivers it to plant.

CENTER, Texas — Automation has been applied to ice production at the poultry processing plant of East Tex Poultry Co. here by Pappas Refrigeration Co. of Houston.

The automatic flake ice system produces 40 tons of ice a day for the poultry company, which is a subsidiary of Western Hatcheries, Inc. of Dallas, at a cost of 62¢ a ton.

Savings over previous ice production costs plus normal depreciation and write-off will pay for the new ice equipment in a short time, according to Pete Pappas of the contracting firm, who says the system previously used produced ice at $6 a ton.

Not only is the Pappas system more economical, but it maintains ice at the right temperature (25° F.) and delivers it by conveyors to just where it's needed, the contractor says.

Plant Can Chill 200,000 Lbs. Of Chickens Each Day

Flake ice, of course, is widely used in poultry processing for rapid chilling. East Tex Poultry has a capacity of 200,000 lbs. of chickens a day. Besides its use for chilling, flake ice is also employed for shipping the poultry.

In addition to ice systems for poultry plants, Pappas Refrigeration has also made installations for the fishing industry along the Gulf.

2 Ammonia Compressors Produce 52-54 Tons Of Refrigeration

The East Tex Poultry installation, which is typical of such Pappas jobs, employs two 7½ x 7½ York ammonia compressors, each driven by 60-hp. motors. They produce about 52 to 54 tons of refrigeration.

Oversize York evaporative condensers are employed with the compressors, and the low sides consist of two North Star model 20-T flake ice makers. Each has a rated capacity of 20 tons of ice per 24 hours.

Compressors and evaporative condensers are located on a 6-in. thick reinforced concrete slab adjoining the building. Directly over the compressors, built on a steel substructure 10 ft. high, is a 73-ton capacity insulated ice storage bin. The bin measures 16 by 30 ft. by 12-ft. high. It is insulated with 4 in. of Styrofoam, lined with galvanized iron, water proofed, and equipped with drains.

The North Star ice makers are mounted above the bin at one end and are covered with a wooden frame structure for protection from the weather. Ice is dropped from the ice makers directly into the insulated bin.

Bin Has Automatic Raking Equipment

Automatic raking equipment is installed inside the bin. The raking assembly rakes the flake ice from the ice maker end of the bin to the opposite end where it falls into a flight conveyor which takes it into the poultry plant.

The speed of raking is adjustable, and is now set to de-

(Concluded on next page)

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Cast aluminum. Inner-Fin construction. No internal joints. Suction line and liquid line are separate tubes. ¼ to 10 Tons.

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Separate refrigerant and water circuits cast within solid aluminum block. No freeze-up damage.

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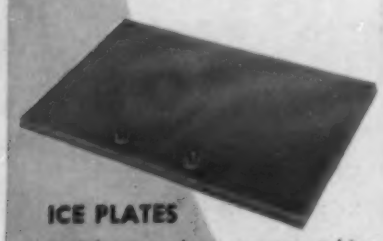
Cooling coils of copper tubing. Shell of steel pipe. ½ to 5 H.P.



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Stainless steel or copper tubing embedded in flat aluminum plate. Capacities to 40 GPH cooling from 80° to 40°.

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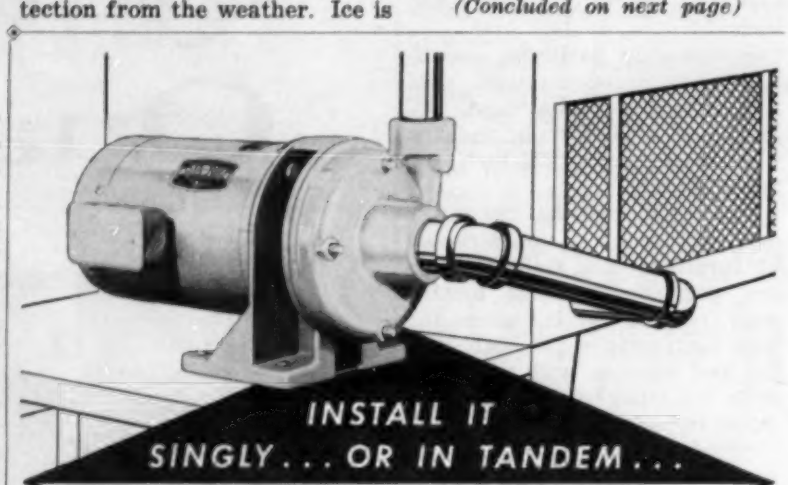

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EDWARDS ENGINEERING CORP. 100 ALEXANDER AVENUE POMPTON PLAINS, NEW JERSEY

For more information about products advertised on this page use Information Center, page 32.

SCREW conveyor carries flake ice direct to chilling vats in poultry plant. Ice is also used in shipment.

Automatic Poultry Processing--

(Concluded from preceding page)

liver 9 tons of ice an hour. Bin is large enough to hold 73 tons of ice. Obviously, with the raking assembly delivering 9 tons per hour and the ice makers having a combined capacity of just under 2 tons an hour, ice must be built up in the bin overnight.

As the ice is used during the day, a timer automatically lowers the rake assembly. If the rake assembly should hit bottom, another control immediately stops the system.

Likewise, if the rake hits the top of the bin, it is automatically shut off. In addition, an electronic eye control shuts off the compressors and ice makers if the ice piles too high in the bin.

At the delivery end of the storage bin is a series of Dutch doors five tiers high. These doors are manually opened by means of cables.

Flake Ice Picked Up On Flight Conveyor

After being raked through the Dutch doors, the flake ice is picked up on a flight conveyor at the end of the storage bin. This conveyor, made up of angle irons and a chain drive, is located in a housing 30 ft. long by 3 ft. wide by 10 ft. high.

The flight conveyor housing, like the storage bin, is insulated with 4-in. thick Styrofoam.

2 Controls Determine Amount of Ice Stored

Ice starts piling up at the end of the flight conveyor where there are two more controls for high and low limit of the ice level at this point. When the ice here is at the low level, this control starts the rake and flight conveyor. When ice piles up to the predetermined high level ,the high limit control shuts off rake and conveyor.

Ice Released for Shipment Packing

End of the flight conveyor has a manually controlled outlet on the bottom through which ice is released for the boxing station. Here the poultry is packed in ice for shipment.

Extending from the end of the flight conveyor, however, is another conveyor—a 9-in. diameter screw type conveyor contained in an oval metal housing which is insulated. The screw conveyor is 18 ft. long and ends in a 6-ft. long spout which can be rotated through 360°.

Here ice is fed into metal chill vats 3 by 3 by 4 ft. long mounted on casters. Mixed with water which is circulated by compressed air piped into the chill vats, the flake ice removes the body heat from chickens within 30 minutes to an hour.

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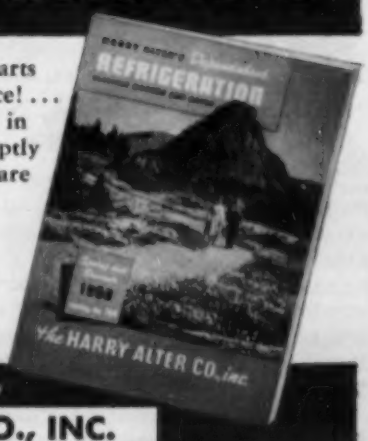

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REFRIGERATION PRODUCTS

Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors (2)

In the adjoining columns, the NEWS presents the second instalment of a discussion by T. N. Schierloh, service technical manager of General Motors' Delco Products Div., on servicing refrigeration and air conditioning motors. A comprehensive treatment of the subject, the material has been presented before RSES groups.

By T. N. Schierloh, Service Technical Manager, Delco Products Div., General Motors Corp.

The repulsion-start induction motor (Fig. 8) is another approach to the high-starting-amps, low-starting-torque problem. In this motor the start winding is eliminated and a wound armature is substituted for the squirrel-cage rotor (Fig. 9).

In operation, when the stator field winding is energized by the line current, a magnetic field is produced which induces a current in the armature winding. The magnetic poles formed on the stator and armature have the same polarity causing a repulsion torque, and that's where we get the "repulsion" part of the name.

After the motor reaches approximately 75% of full speed, the commutator bars of the armature are short-circuited by means of a centrifugal device. The armature then acts like a squirrel cage rotor and the motor continues to rotate as an induction motor.

The repulsion-start induction motor features high starting torque with the ability to handle long acceleration loads. It draws relatively low starting current and has the running features of the split-phase end capacitor-start motors.

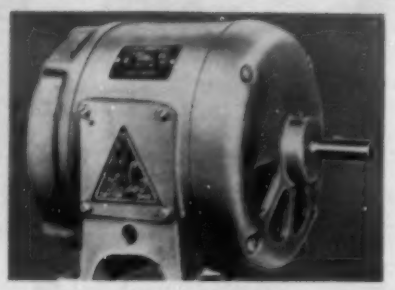


FIG. 8—Repulsion-start induction motor is another approach to high-starting-amps, low-starting-torque problem.

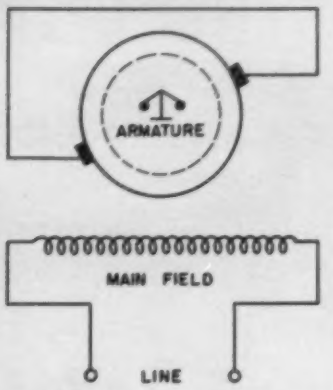


FIG. 9—Schematic circuit of wound armature for squirrel-cage rotor in motor.

Among its disadvantages are: inherent maintenance problems of a brush-type motor, radio interference, and higher rebuilding costs. The initial cost is also usually higher than other types of single-phase motors.

Proceeding to some of the later designs of motors, the shaded-pole motor (Fig. 10) has played an important part in the industry.

FIG. 10—Shaded-pole motors are single phase units.

Shaded-pole motors are single-phase motors having a short-circuited auxiliary winding displaced magnetically from the main winding (Fig. 11). The short circuited, or shading coil, causes the magnetic flux in a portion of the pole to lag behind the main flux, setting up a weak torque to start rotation. The shaded-pole motor uses a concentrated winding, salient-pole construction, with the shaded coil usually consisting of a one-turn, welded or soldered copper strap. Squirrel-cage type rotors of either aluminum die cast or welded copper bar construction are used.

Simple Construction, Low Cost are Advantages Of Shaded-Pole Motors

The simplicity of construction and correspondingly low cost are prime advantages of shaded-pole motors, and in addition they have no internal switch and contact assemblies, have moderate locked amps and can be economically adapted for multiple speed operation.

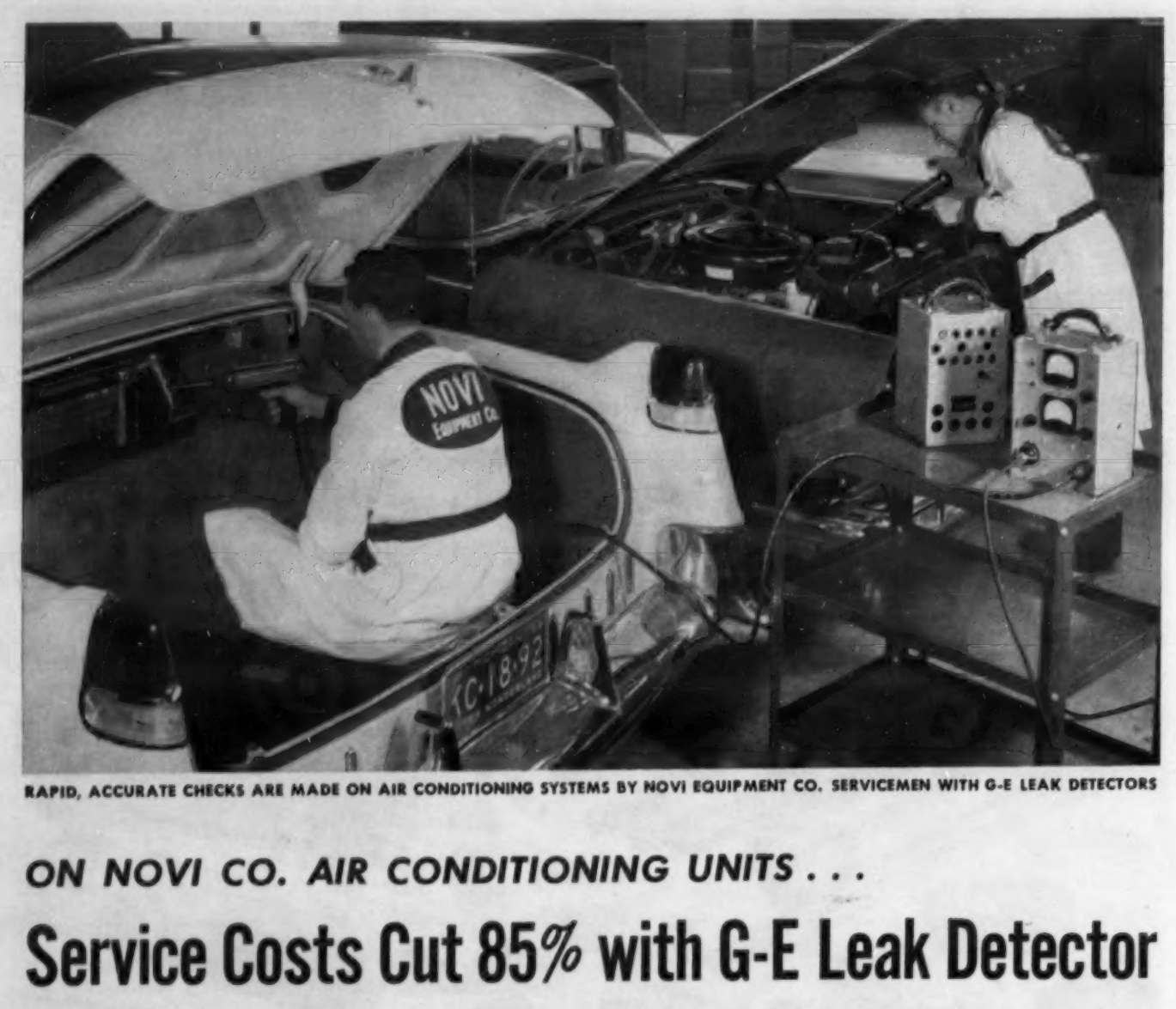
Performance-wise, shaded-pole motors are characterized by low starting torque, low efficiency, moderate power factor, and relatively high running amperes. The higher operating temperatures caused by less efficiency, usually require an air-over-motor application.

The low starting torque limits their use largely to direct-drive fan and blower applications where locked rotor torque requirements are not severe. Motor stability at low speeds is greatly affected by line voltage variations.

Extended winding shaded-pole motors (Fig. 12) are essentially a variation of the shaded-pole motor, with the exception that an additional or "extended" winding is added to the basic shaded-pole motor design (Fig. 13). This extended winding is in series with a capacitor and the combination is in parallel with the main winding.

The extended winding motor has a power factor between 70 and 90% and the running current is 65 to 80% that of a shaded-pole motor. Higher power factors are possible, but the capacitor cost materially

(Continued on next page)



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ON NOVI CO. AIR CONDITIONING UNITS . . .

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"85% of our service repairs on auto air conditioning units were due to loss of Freon* at a cost of approximately $5.00 per repair," says Mr. Lewis W. Welch, president of Novi Equipment Company of Novi, Michigan. "Since we adopted the G-E leak detector as a standard item in our repair kits, complaints have been reduced to almost nil. We are in the process of equipping all of our 90 factory installation centers with G-E leak detectors to assure that our customers will receive the best possible initial installation."

Like Novi Equipment Company, you can benefit from these outstanding features of the General Electric Type H-1 leak detector:

SIMPLE IN OPERATION, the detector will locate leaks in any system which contains a halogen compound, or into which such a compound may be introduced as a tracer.

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*Registered trade-mark, Kinetic Chemical Division of E. I. DuPont de Nemours & Company.

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MANY APPLICATIONS are possible with the General Electric Type H-1 leak detector. Lightweight and portable, it also features audible leak indication.

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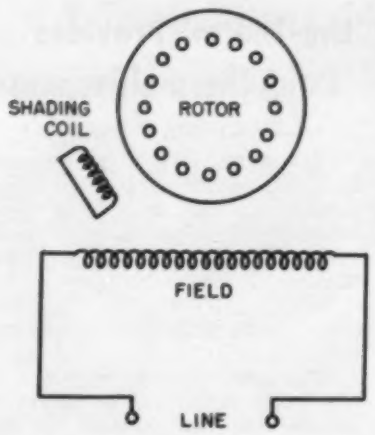

FIG. 11 — Shaded-pole, single-phase motors have short-circuited auxiliary windings displaced magnetically from the main winding.

Motor Servicing--

(Continued from preceding page)

increases in the higher range.

Other characteristics, such as efficiency, starting torque, breakdown torque, etc., are the same as shaded-pole motors.

These motors are gaining increasing interest for applications such as room air conditioners where power factor must be increased and running current decreased from that required by the shaded-pole motors.

Compared to permanent-split capacitor motors which will be considered next, the running current is greater for extended winding motors, but power factor can be comparable.

Cost of Extended Winding Motors Is Greater

Cost of extended winding motors is greater than shaded-pole, but less than permanent-split capacitor motors.

Capacitor motors using the same value of capacitance for both starting and running conditions are termed permanent-split capacitor motors (Fig. 14). PSC motors are similar in construction to conventional single-phase motors, having separate main and phase distributed-type windings (Fig. 15).

The phase winding, in series with the running capacitor, remains in the circuit at all times, eliminating the need to disconnect the phase winding during motor operation. The capacitor is usually of the oil-filled type and may be mounted on the motor or at a remote location from the motor.

The outstanding advantages of PSC motors are their high power factor and low running current. Power factors can range from 80 to 95%, and running currents are approximately 35 to 65% of the currents drawn by shaded-pole and split-phase motors of the same horsepower and rating.

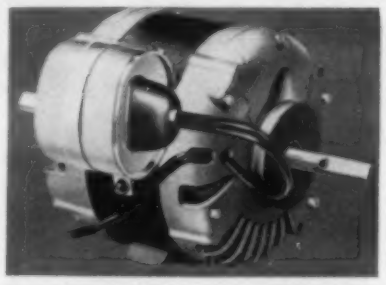

FIG. 12—Extended winding shaded-pole motor is essentially a variation of the shaded-pole motor with the exception that an "additional" or "extended" winding is added to the basic shaded-pole motor design.

Generally PSC motors operate at higher speeds than shaded-pole motors; however, PSC motors can be designed for high splits at full load conditions. Multi-speed operation of PSC motors is possible by the use of a tapped winding or external choke.

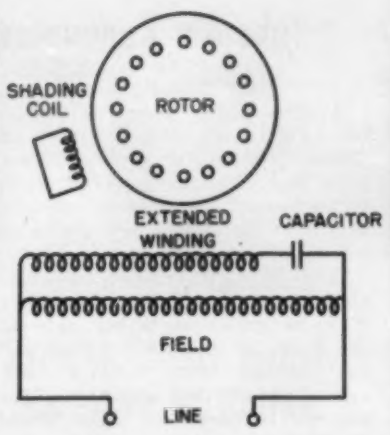

FIG. 13—Extended winding is added to basic shaded-pole motor winding.

The low starting torque of PSC motors limits their use to direct-driven fans and blowers. The correspondingly low locked amps, however, are often an important advantage. Even though PSC efficiencies are higher than those of shaded-pole motors, most PSC motors are also rated as air-over-motor.

The primary disadvantage of PSC motors for ventilating purposes is their higher cost, due to more expensive windings, and the running capacitor.

Permanent-split capacitor motors are especially applicable where current and power factor restrictions limit the use of other motor types.

(To Be Continued)

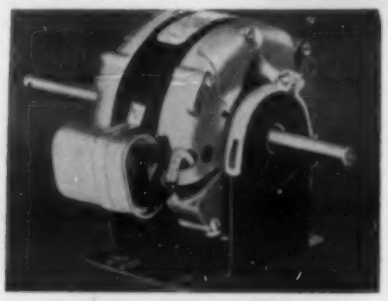

FIG. 14—Permanent-split capacitor motor.

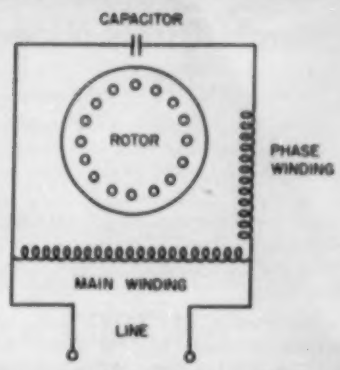

FIG. 15—Schematic circuit of PSC motors.

Norge Adds Mart Space

CHICAGO — An additional 6,000 sq. ft. of floor space, the fourth expansion in five years, has been leased in Chicago's Merchandise Mart by Norge Div., Borg-Warner Corp.

Judson S. Sayre, president, said all advertising, merchandising, and marketing research functions will be concentrated in new offices on the second floor.

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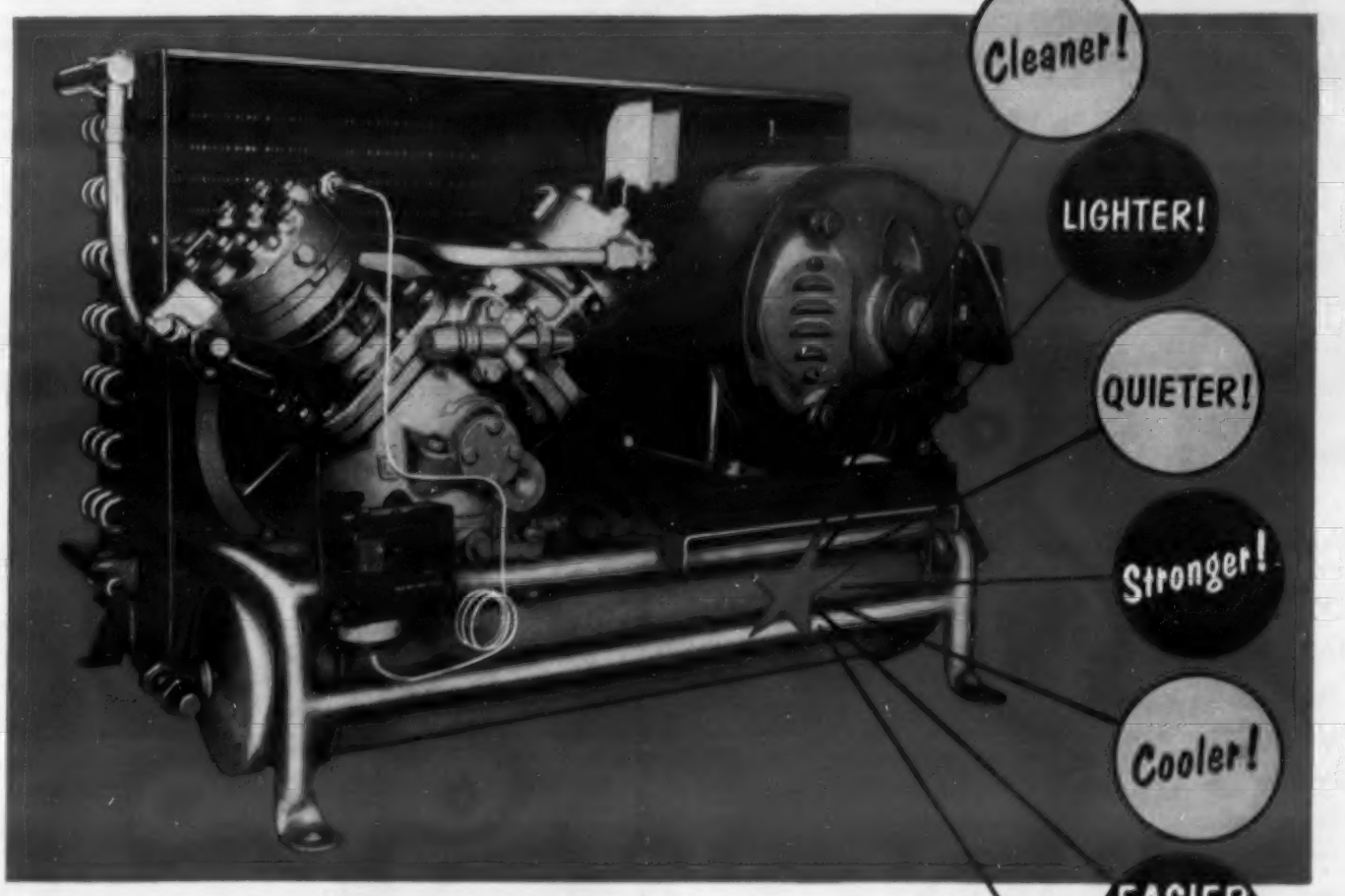

Here is a tremendous new improvement in Kelvinator open-type condensing units! New tubular-type bases give you many *plus benefits* that now make Kelvinator, more than ever before, *your best buy*. Look at the heavy-duty construction of the Model OA-100 pictured above . . . check again the *extra value* features you get with Kelvinator's improved tubular-base models.

Kelvinator offers you a complete line of precision-built air-cooled, water-cooled, combination, and truck-type condensing units . . . hermetically sealed condensing units . . . and hermetic compressors for household and commercial cabinet use.

See your Kelvinator wholesaler, or write Kelvinator Division, American Motors Corporation, Detroit 32, Michigan.

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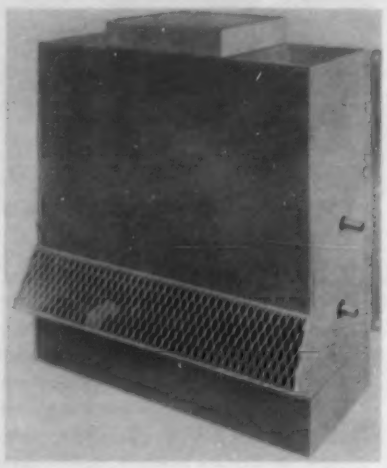
Recold Offers Midget Evaporative Condenser

KEY NO. F-630



LOS ANGELES—A new Recold "midget" evaporative condenser is now available for commercial or residential air conditioning and other low tonnage applications, it was announced by the manufacturer, Refrigeration Engineering, Inc. here.

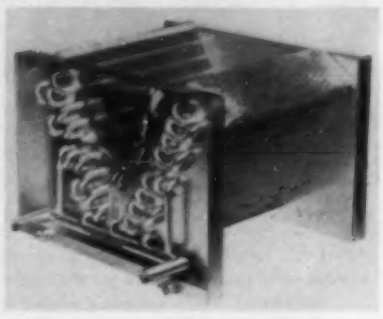
Designated "MEC," this condenser is made in four sizes rated 2, 3, 4, and 5 tons with low head pressure and what the firm claims is economical operation.

Constructed of galvanized metal throughout, the unit features "funnel" water bleed which is said to eliminate small bleed lines and adjustable valves to provide non-clogging bleed without wasting water.

The 43¾-in. high unit has splash-proof air inlet and removable panels for easy servicing, the firm states.

Tubenfin Announces V-Type Furnace Coil

KEY NO. F-632



HOUSTON, Texas—Tubenfin Coil Co. here, manufacturer of "Freon" evaporator and condenser coils, has announced a "V" type furnace coil said to be readily adaptable to almost any make of warm air furnace.

Connections for refrigerant liquid and suction and condensate drain may be made at either side of the front in order that piping will not coincide with furnace vent, according to the company. This feature is useful in tight closet installations, it was pointed out.

Capacities of the units are available to balance with air or water-cooled condensing units of 1½, 2, 3, 5, and 7½ hp.

'Uni-Therm' Provides Quick Thermal Response

KEY NO. F-635

PITTSBURGH — A thermostat designed for appliances requiring positive "snap-action" at a predetermined temperature is now available from the Westinghouse Electric Corp.

This "Uni-Therm" will "remake" with a predetermined differential.

"The quick thermal response of this low-cost thermostat makes it suitable for heat control on air conditioners, room heaters, coffeemakers, broilers, hot water heaters, or any appliance calling for sensitive, accurate temperature control," the company said. "Metal-to-metal contact with the heated surface minimizes the differential between operating and bi-metal temperatures."

The thermostat can be obtained in any calibration up to 550° F. It has a rating of 1,500 watts on 115 or 230 volts with limited d.c. ratings.

Rhodes Freezer Stores Baked or Unbaked Goods

KEY NO. F-631

PORTLAND, Ore. — Production of a new type of freezer for either baked or unbaked goods has been announced by H. C. Rhodes Bakery Equipment Co. here.

Its attractive finish permits bakers to use it in their retail stores as a self-service unit for frozen pies, cakes, and rolls of all kinds.

Restaurants and institutions make their "Zero Queens" do triple duty as storage for frozen bakery goods, ice creams, and meats. Grocers often use a Zero Queen for convenient back room storage.

Occupying a 33 by 38-in. floor space, the freezer has a capacity of 24 bun pans on 1⅞ in. spacing, or 40 bun pans on 1$^{3}/_{32}$ in. spacing. It is adjustable to allow different types of goods, such as layer cakes, pies, and cookies, to be stored together.

Schmidt Case Features Glass on All Sides

KEY NO. F-633

CINCINNATI—Said to be the first all-glass refrigerated display case designed specifically for bakery products is a new model being introduced by The C. Schmidt Co. here.

The case is 6 ft. 3 in. long, stands 50 in. high, and is 31¾ in. deep. Triple glass is used in the front, and double glass on the top and ends.

A ⅓-hp. condensing unit is mounted in the base at the factory, and two slow-speed blowers circulate cold air through the case.

Satin finished stainless steel is used for trim, and the base is finished in gun metal gray. The recessed base creates an impression of the display floating in the air. If desired it may be covered with artificial stone or brick.

Storage Cabinets Have 2 Types of Drawers

KEY NO. F-634

AURORA, Ill. — "Little Gem" cabinets for tiny parts storage are now available in choice of two different drawers, according to Equipto here.

Type A drawer offers as many as 28 instantly-adjustable compartments.

"Compartment surfaces are curved for easy dispensing, overhang prevents jumbling of parts, and labelholders assure easy identification," the company said.

Other features are drawer stop and enclosed bottom and sides.

Lower-priced type B drawer offers as many as 36 adjustable compartments.

The cabinets can be used individually, in stacks, or in a wide variety of multi-drawer units. They are interchangeable with larger type Equipto drawers.

Information Center

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(PLEASE PRINT PLAINLY)

Name . . . . . Title . . . . . .

Company . . . . . .

Street . . . . . .

City . . . . . Zone . . . . . State . . . . . .

Type of Business . . . . . .

MAIL THIS FORM TO
AIR CONDITIONING & REFRIGERATION NEWS
Readers Service Dept.
450 W. FORT ST. DETROIT 26, MICHIGAN

NEW *Designs and Features!*
P-H REFRIGERATORS and FREEZERS

MODEL P 40-2
Self-Contained

Important features of the newly styled and completely redesigned P-H line of commercial refrigerators and freezers include:

- ☆ Genuine Porcelain or Stainless Steel Finish.
- ☆ Exclusive "Grad-U-Matic" Self-Defrosting Air Conditioning.
- ☆ Tubular Electric-Welded Steel Frames.
- ☆ Heavy Fiberglass Insulation.
- ☆ Solid or Triple Thermopane Doors.
- ☆ Self-Contained or Remote Control.

MODEL SA 15-15
Two-Temperature Refrigerator

UL APPROVED
MODEL P 66-3
Self-Contained

THE P-H LINE

Write FOR CATALOG!

Also AVAILABLE — A complete line of Reach-In, Pass-Thru and Salad Refrigerators . . . Upright Storage Freezers . . . Baker's Freezers and Dough Retarders . . . Dairy-Delicatessen Cases . . . Two-Temperature Refrigerators . . . 22 to 96 Cu. Ft. Capacities . . . Dry Beverage Coolers . . . and Walk-In Coolers and Freezers.

PUFFER-HUBBARD REFRIGERATOR CO.
GRAND HAVEN, MICHIGAN
EXPORT OFFICE — PUFFER-HUBBARD INTERNATIONAL — 440 Lafayette St., New York City — Cable "MANREFSUP"

It's the talk of the trade...

a potential customer at every stop

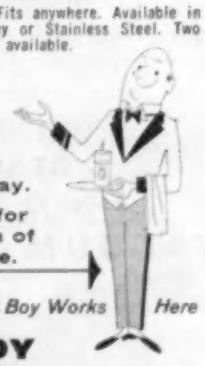
ICE BOY
MODEL LC-25

Cash in on these BIG selling features:

- Dial-a-size Control
- King Size Ice Tips
- Sanitary — ice tips washed while made
- Low Maintenance Cost

Best of all, you sell the Ice Boy to every type of outlet; bars, restaurants, cafeterias, florists, groceries, etc.

ICE BOY
MODEL LC-25
Compact. Fits anywhere. Available in Avalon Grey or Stainless Steel. Two other sizes available.



ICE BOY
by Lipman Division of Yates-American

Tear out and mail today

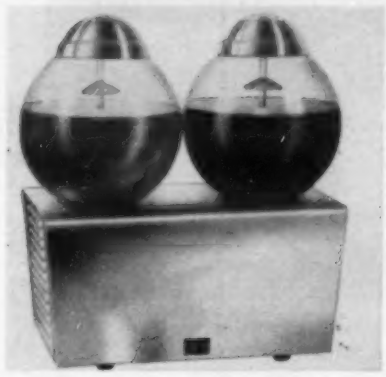
Yates-American Machine Co. LI-502
Dept. F, 763 Fourth Street
Beloit, Wisconsin

Gentlemen: I'm interested. Please send me specification sheets and literature describing the complete Ice Boy line.

Name
Title
Company
Address
City Zone State

For more information about products advertised on this page use Information Center, page 32.

2-Flavor Beverage Dispenser Introduced



KEY NO. F-636

CHICAGO — Heat Exchangers, Inc. here has introduced the "Buckingham Twin," 18-gal., two-flavor refrigerated beverage dispenser.

"Analumination" of model DR-85 helps the two "Starlite Domes" merchandise without pulp accumulations, according to the company. For use at concessions, outdoor theaters, drive-ins, and heavy traffic locations, the unit takes 16 by 29 in. of counter space, stands 29 in. high.

Both ends of the anodized aluminum cabinet are removable for service, shock and heat resistant glass bowls have no hoses or clamps to remove for cleaning, and 8-oz. drinks can be served within three seconds.

Separate on-off switches on each 9-gal. bowl also cut off illumination, drip trays are said to hold all condensation and spillage, and beverages are quickly cooled from 75° to 40° F.

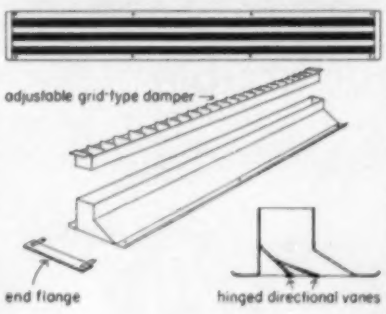
Permanently lubricated pumps have neoprene seal with impeller and pump head made of nylon, the firm said. Compressor is a ½-hp., heavy-duty unit which operates at 115 v., 60 cycle a.c., 12 amps. Weight is 185 lbs.

Connor Offers Slotted Linear Diffuser

KEY NO. F-637

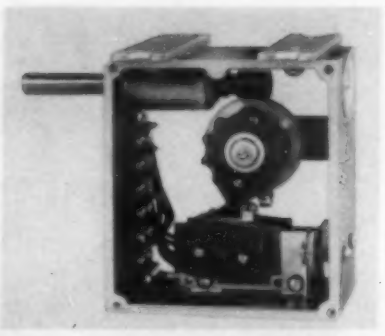
DANBURY, Conn.—The Connor Engineering "Kno-Draft" series of slotted air diffusers for interiors requiring a linear type of outlet "provide complete control of both air volume and air direction," according to the company.

The adjustable grid-type damper regulates air volume evenly over the entire diffuser length and the hinged extruded aluminum vanes can be positioned for any angle of air discharge, it was said.



The slotted series is available in two models, KSL-1 for single air stream discharge in 3½-in. and 6-in. widths, and KSL-2 for multi-directional discharge and greater capacity in a 12-in. width. Both models are made in 2, 3, 4, and 6-ft. modules.

By omitting the end flanges at each joint several may be installed end to end to form a continuous diffuser line.



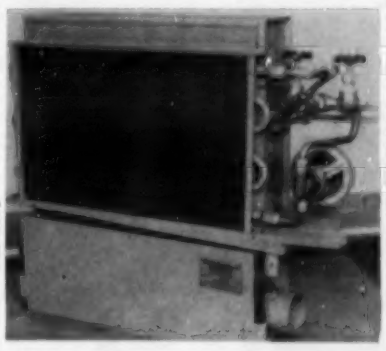
Rotating Limit Switch Has 480 V. Rating

KEY NO. F-638

BATAVIA, Ill.—A new rotating limit switch with heavy-duty pilot ratings to 480 v. was announced recently by Furnas Electric Co.

Two single-pole, double-throw, snap-action contact assemblies are featured in addition to a general purpose cast aluminum housing with removable cover plate on each side of switch to provide wiring accessibility, "Oil-Lite" bearings on the input shaft plus heavy-duty worm and cam gears with accessible adjustments, the firm claims.

This new line of rotating switches, in addition to previous lines, is used to limit travel of electrically operated doors, conveyors, hoists, and similar mechanisms, it was explained. Normal use is as a pilot control to operate solenoids of magnetic reversing starters or contactors.



Valve Cluster Provides Proper Piping Fit

KEY NO. F-639

HARRISON, N. J. — A three valve manifold cluster, designed by Worthington Corp. for use with its induction circulator room air conditioning units, was introduced recently by the company.

The cluster is said to provide exact means of getting proper fit of all piping parts involved in the water feed to the units. It is claimed to eliminate intricate layout of piping connections normally prepared by contractors.

Worthington introduced its induction circulator some months ago.

Used in high-pressure induction systems in multi-story buildings, the induction circulator is a room air conditioning unit operating on the high-pressure air induction principle and with a central system, for climate conditioning of perimeter and inner areas.

Exclusive design of the valve cluster permits full adaptability to left or right-hand connections of the coil simply by rotating the two main connections 180°.

These clusters combine inlet and outlet stop valves and the by-pass valve all in one casting for installation on Worthington induction circulators used in high-pressure induction systems.

This combination enables the piping contractor to purchase complete valve and piping assembly, ready to assemble to coil ends. The assembly is complete with flare nuts to mate on coil ends. The three valve manifold connections are available with flare ends or O.D.S.

The clusters are also available for use with pneumatic control valves, manual control valves, and self-operating type automatic control valves.

Positive ventilation is assured at all times by proper quantity of outside air drawn through the central plant equipment and properly filtered, humidified or dehumidified, heated or cooled as required, and delivered under relatively high pressure through round duct headers and risers to each induction circulator.

A constant quantity of this primary conditioned air mixes by induction principle with the room or secondary air and diffuses through the space at the proper temperature and humidity.

Ideal Offers 16-Ft. Island Display Case

KEY NO. F-6310

BROOKLYN — Newest addition to Ideal Store Fixture Co., Inc.'s line is a 16-ft. island frozen food display case which is said to offer greater display of frozen foods.

Model FF1D-1-LL is color styled, has warmed handrails, and ticket mouldings are furnished on both sides of the unit. Solid fronts are 36 in. high, bumper to bumper width is 43 in., with 30-in. display width. The case is equipped with automatic electric defrost system, the firm said.

1. All parts are at your finger tips when you remove one thumb screw.
2. You *never* need to remove the *permanent* refrigeration, power or water drain lines.
3. Machine bolts with lock nuts are used throughout construction . . . no sheet metal screws!
4. Extra large Facetized* fin coil assures maximum heat transfer.
5. Pre-determined spacing and slotted hangers for easy, exact installations . . . fans can't be blocked in installation.

Tenney's exclusive easy-to-service design saves time and effort! Modern, semi-circular shape insures maximum all-over air distribution . . . compact sizes add to usable work area. Load right up to unit because pan can be removed from any direction . . . double drain trough pitched toward connection and insulated . . . **controlled horizontal airflow eliminates uncomfortable direct drafts.**

Twin motors and fans give double protection . . . a single motor will maintain safe temperature . . . attractive covers have rust proof baked-on finishes . . . filters are available for applications requiring clean air circulation . . . female pipe thread adapts drain connection to *any* line . . . units skillfully engineered for long, dependable service.

*PATENTED

There's a Tenney TW unit cooler for every refrigeration job.

For complete information write for Bulletin 103-54 TODAY!

Tenney ENGINEERING, INC.
DEPARTMENT AC-618
1090 SPRINGFIELD ROAD, UNION, N. J.
Plants: Union, N. J. and Baltimore, Md.

Pioneer Manufacturers of Refrigeration and Environmental Equipment

Redmond
MICROMOTORS
One of largest stocks in the world!
FACTORY DISTRIBUTORS
MARVIN L. "FERGIE" FERGESTAD
CYCLO-FREEZE CORP.
6318 Cambridge, Mpls. 16, Minn.
West 9-6794

REFRIGERATING ANATOMY
of a super
SUPER MARKET!

Panorama #3 Market, Reseda, California

by DRAYER-HANSON
Installing Contractor: National Refrigeration Sales of Los Angeles, Inc.

2 SPOTAIRES — Meat Cutting & Packaging Rooms

4 HOT SHOTS — Meat Storage Room

2 SPASAVERS — Dairy Cooler

1 FLOCOLD — Beverage Cooler

1 HOT SHOT — Ice Cream Freezer Room

PLUS . . . 10 more units, individually installed.

Had the Full Story, yet, on product-produce storage and refrigeration?

D-H equipment has solved "tough nut" refrigeration problems — since 1910.

Request bulletins, XX-1

d-h drayer-hanson
3301 Medford Street · Los Angeles 63, California
(Division of National-U.S. Radiator Corporation)

Freezer-Foods Operator Finds Many Uses for Unit Coolers

LEBANON, Pa.—Levitz Frozen Foods, Inc. here is successfully engaged in a home freezer-foods service which includes several phases: selling a freezer, servicing the freezer, supplying the food, and financing all purchases.

Details of all phases of the operation are taken care of by one organization.

Temperature Maintained at -30° In Freeze Room

To handle the cutting and freezing of meats, the company has set up a sizeable plant. In the sharp freeze room of this plant, a Bush "HGD" 80-4 glycol defrost product cooler maintains temperature at -30° F. The unit is ceiling-hung to permit maximum use of floor space and is arranged for "free blow" circulation.

In the meat storage room, a Bush HGD 48-4 unit maintains -10° F. temperature. Individual diffusers in the ductwork connected to the unit permit control of air circulation as desired.

Ductwork Circulates Oo Cold In Breakup Room

A Bush HGD 48-2 unit is utilized in the breakup room where individual customer orders are made up. Here, 0° F. temperature is maintained and ductwork is utilized to provide optimum circulation in the 35 ft. by 30 ft. by 12 ft. area.

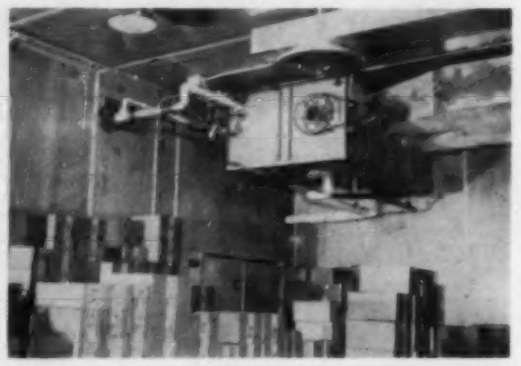
The three GD units are defrosted for 30 minutes once a day. Heating of the glycol to defrost all three units is handled by a single glycol defrost kit. This kit, supplied complete and assembled, consists of a specially designed cast aluminum glycol heater, timer, and magnetic contactor.

"Inner-Fin" construction of the Bush units permits an entirely separate defrost circuit. Heated glycol is circulated within the inner tube, defrosting coils from the inside of the tube.

In the meat aging room, equipped with meat rails that will hold 2½ carloads of beef, two Bush CJ85 "Ceiling-Jet" unit coolers and four Bush PN-1.10.2-112 "Plasti-Coolers" hold the temperature at 35° F. and provide the high humidity necessary to prevent dehydration of the meat.

The cutting room at Levitz is maintained at 55° F. by two Bush Ceiling Jet unit coolers which, like the ones in the meat aging room, provide quick air circulation when needed, it was noted. Radiant floor heat assures warm feet for employes working in the cutting room.

TWO Bush "CJ" ceiling jet unit coolers are shown in the cutting room of Levitz Frozen Foods, Inc., Lebanon, Pa.



BREAKUP room at Levitz's contains this Bush "HGD" hot gas defrost product cooler.

Automatic Controls Govern Refrigeration

Refrigeration throughout the entire plant is set up for completely automatic operation. Prefabricated removable walls of aluminum construction were utilized to facilitate future expansion.

Consulting engineering firm on the job was V. C. Patterson & Associates, York, Pa. Herre Bros., Harrisburg, Pa. was the refrigeration contractor.

Port Morris Will Build Plant for Super Shake Unit

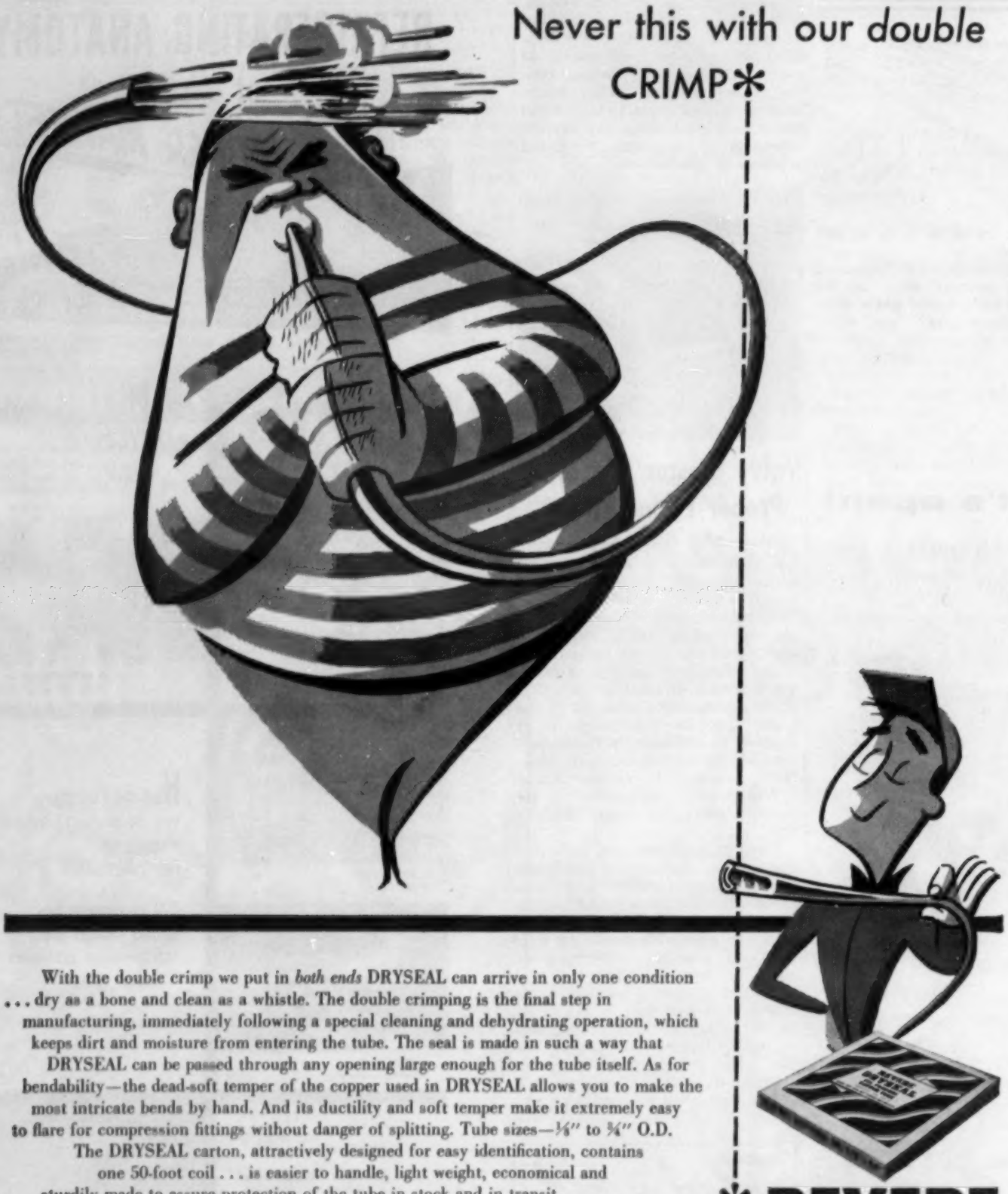
NEW YORK CITY—Charles Erickson, president of Port Morris Machine & Tool Works, Inc., recently announced the establishment of a second assembly plant especially for the manufacture of the new "Electro Freeze Super Shake" unit.

"Never in the history of Port Morris Machine has there been such an influx of orders for one particular model."

The company believes this acceptance is due to the "entirely new principle of the Electro Freeze Super Shake unit. The spindle going right through the head of the compressor enables the operator to make a milk shake in any of three flavors in four seconds."

It is also believed that the variable overrun recently made possible on the Super Shake unit "has had a very favorable effect on buyers of this unit."

Never this with our *double* CRIMP*



With the double crimp we put in *both ends* DRYSEAL can arrive in only one condition . . . dry as a bone and clean as a whistle. The double crimping is the final step in manufacturing, immediately following a special cleaning and dehydrating operation, which keeps dirt and moisture from entering the tube. The seal is made in such a way that DRYSEAL can be passed through any opening large enough for the tube itself. As for bendability—the dead-soft temper of the copper used in DRYSEAL allows you to make the most intricate bends by hand. And its ductility and soft temper make it extremely easy to flare for compression fittings without danger of splitting. Tube sizes—⅛" to ¾" O.D. The DRYSEAL carton, attractively designed for easy identification, contains one 50-foot coil . . . is easier to handle, light weight, economical and sturdily made to assure protection of the tube in stock and in transit.

REVERE
COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.
• • •
Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere.

* REVERE
DRYSEAL
COPPER
REFRIGERATION
TUBE

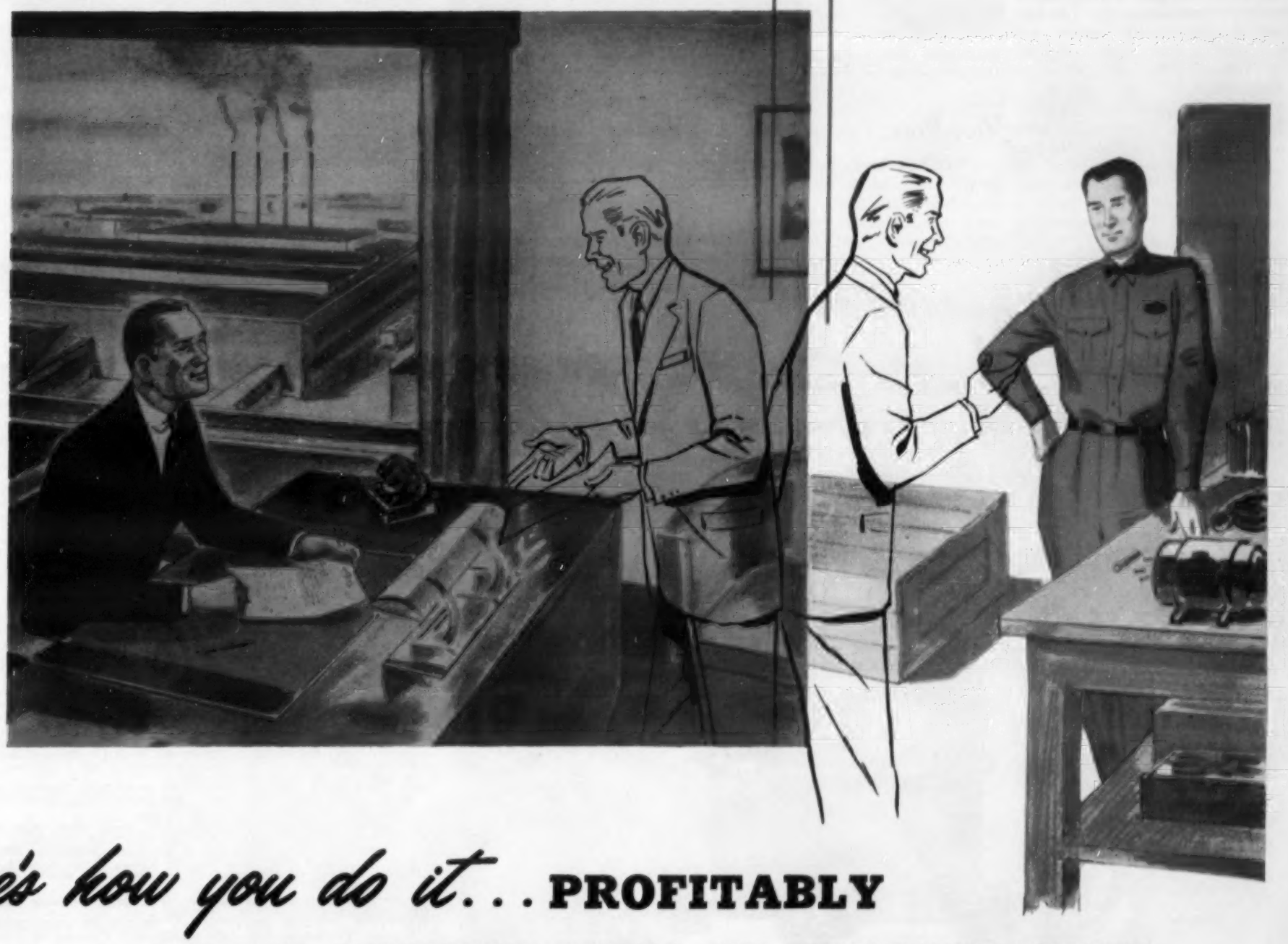
NOLIN *Moisturizer*
VEGETABLE CASE

AVAILABLE IN
5' - 8' - 10' SIZES
If It's Not a NOLIN, It's Not a MOISTURIZER
NOLIN MANUFACTURING COMPANY
1400 LLOYD ST. PH. 3-4454
MONTGOMERY, ALABAMA

For more information about products advertised on this page use Information Center, page 32.

If you're selling replacement parts...

YOU HAVE TO BE TWO PLACES AT ONCE!



here's how you do it... PROFITABLY

IN THE AIR CONDITIONING, HEATING, AND REFRIGERATION INDUSTRY

You sell the manufacturer. He's the man who can specify your product as original equipment and build automatic replacement parts volume. More manufacturers by far subscribe to, read and clip AIR CONDITIONING & REFRIGERATION NEWS than any other publication in the field. (A recent readership study of O.E.M. manufacturers reveals 93% of their executives read the NEWS). What better place to tell your selling story!

You sell the contractor and serviceman. They are the men who can order your product as a replacement part for the equipment they service. They, too, subscribe to, read and clip AIR CONDITIONING & REFRIGERATION NEWS. In Detroit, for example, 66% of dealer-contractors (who make 84.5% of all air conditioning and refrigeration installations) are paid subscribers. Again, what better place to put over your sales story!

To do your *first* selling job in *both* places where the *first* selling job is being done in *both* places—look *first* to the NEWS.

AIR CONDITIONING & REFRIGERATION **NEWS**

The Newspaper of the Industry

THE NEWSPAPER THAT CARRIES MORE ADVERTISING BY FAR THAN ANY OTHER PUBLICATION IN THE FIELD.

450 West Fort Street, Detroit 26, Michigan

NEW YORK, 521 Fifth Ave., MUrray Hill 7-7158, Robert M. Price.
CHICAGO, 134 S. LaSalle St., FRanklin 2-8093, Allen Schildhammer.
LOS ANGELES, 4710 Crenshaw Blvd., AXminster 2-9501, Justin Hannon.
DETROIT, 450 West Fort St., WOodward 2-0924, J. B. Sullivan.

ABP — ABC AUDITED PAID CIRCULATION

For more information about products advertised on this page use Information Center, page 32.

Doctors Pleased To Flip Switch, Get Year-Round Conditioning In Clinic

BIRMINGHAM, Ala.—Thirty-six tons of air-cooled Typhoon air conditioning is installed in a year-round system for the Arlington building here, a doctors' and dentists' clinic.

Three-ton air conditioners and 100,000 B.t.u.h. gas furnaces provide cooling and heating for each professional suite. The air-cooled condensing units are mounted in three banks of four on the roof of the two-story building.

The installation was made by Lancaster Equipment Co. here and engineered by Steve Pappas.

Durral Dobbins, owner of the building, said the doctors were particularly pleased to be able to flip a switch for heating or cooling as needed.

PHYSICIANS' and dentists' clinic in Birmingham, Ala. has three banks of four air-cooled condensing units mounted on roof as part of year-round air conditioning of the building.

Vice-Pres. Drury Heads Redmond Mfg.

OWOSSO, Mich. — Robert E. Drury has been elected vice president and assistant secretary of Redmond Motor Co., manufacturer of fractional horsepower electric motors.

According to J. W. Tweedy, president of Redmond, Drury will also continue to be director of manufacturing.

DEPENDABLE PERFORMANCE

Assured... Servel

WHEN IT'S POWERED BY THE NEW ADVANCED SUPERMETIC®

Compact, unusually quiet, full capacity — the new SERVEL ADVANCED SUPERMETIC POWER UNITS are super-right for remote-type or self-contained fixture applications. There's a choice of sizes from ¼ through 7½ HP. High back pressure models for air conditioning, water cooling, bulk milk and beverage cooling. Low and medium back pressure models for a wide range of commercial refrigeration requirements.

SERVEL POWER UNITS can be mounted on any flat surface . . . using a minimum of space. Suction-cooled motors require no water connection to the compressor. Simplified electrical connections reduce installation costs.

NOW — AT NEW LOW PRICES — also complete condensing units for expansion valve or capillary tube type systems. Hermetically sealed with the latest built-in features to give you superior performance, more dependability. Write for full data NOW!

SERVEL, INC., Commercial Refrigeration Division, Evansville 20, Ind.
INTERNATIONAL DIVISION, 19 RECTOR STREET, NEW YORK, N.Y.

Servel

THE NAME TO WATCH FOR GREAT ADVANCES IN REFRIGERATION AND AIR CONDITIONING

Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

ARMY

Commanding Officer, Jefferson Proving Ground, Madison, Ind.
The following are procured under IFB ORD 12-040-56-15—Bid Opening 19 June 56.
BOX EXTREME TEMPERATURE AMMUNITION CONDITION hot or cold, 2 ea.—BOX ICE STORAGE, 1 ea.—SPARE PARTS FOR ONE EXTREME TEMPERATURE CONDITIONING BOX, 1 set.
Following are procured under IFB ORD 12-040-56-15—Bid Opening 19 June 56. BOX, Extreme Temperature, ammunition condition, Hot or Cold, Cap. 1500#, Max. Temp. 100° F. to plus 200° F., 2 ea.—BOX, Ice Storage, 1 ea.—SPARE PARTS (Including blower fan, blower motor, electric motor, electric heater, thermostats and door gaskets) for one (1) extreme temperature conditioning box, 1 set.

Purchasing and Contracting Division, Fort Riley, Kan.
REPLACEMENT OF WARM AIR FURNACES in Cantonment Type Buildings, Fort Riley, Kan.—Job—IFB AV 14-040-56-93—Bid Opening 20 June 56.

Purchasing & Contracting Division, Quartermaster Office, Fort Benning, Ga.
INSTALLATION OF AIR CONDITIONING IN HOSPITAL Laboratory Buildings Nos. 322 and 392, Main Post, Fort Benning, Ga.—Job—IFB 09-038-56-192(B)—Bid Opening 18 June 56.

Purchasing Division, Rocky Mountain Arsenal, Denver, Colo.
INSTALLATION OF GOVERNMENT FURNISHED REFRIGERATION EQUIPMENT INCLUDING REMOVAL OF EXISTING REFRIGERATION EQUIPMENT AND FOUNDATIONS. Construction of new reinforced concrete foundations and installation of Government-furnished equipment and construction of miscellaneous concrete tank foundations and pits—Job—IFB CML C-05-021-056-54B—Bid Opening 22 June 56.

Central Purchasing Branch, Fort Knox, Ky.
The following items are procured under IFB AII-15-014-56-206—Bid Opening 19 June 56.
PREPACKAGING SYSTEM, MEAT, conveyor type, right hand, similar and equal to Standard Dayton Model RSR, 1 ea.—PREPACKAGING SYSTEM, same as Item 1 except left hand, similar and equal to Standard Dayton Model RSL-160, 1 ea.—CASE, meat display, 11 ft., similar and equal to McCray MRD, 3 ea.—CASE, MEAT DISPLAY, 8 ft., similar and equal to McCray MRD, 1 ea.—END PANELS for meat cases, 1 pr.—COMPRESSOR, WATER-COOLED, 2-hp., 3 phase, similar and equal to Brunner WC-200 FC, 2 ea.

Commanding General, Columbus General Depot, Columbus 15, Ohio. Attn.: Quartermaster Purchasing Agency.
DISPENSER, DRINKING WATER, Fed. Spec. 00-C-566C—3 line items, quantity various—IFB 56-325B—Bid Opening 28 June 56. An additional quantity of approx. 376 dispensers is being reserved for small business under a partial joint determination.

Corps of Engineers, U. S. Army, Seattle Dist., 4735 East Marginal Way, Seattle 4, Wash.
HEATING PLANT, Fort Lewis, Wash. Work involves const. of reinforced concrete central heating plant 54 ft. x 56 ft. Furnish and install two high pressure boilers and appurtenances. Building to include necessary electrical, water and sewer utilities—Job—IFB ENG-45-108-56-205B—Bid Opening 22 June 56.

Purchasing & Contracting Office, Bldg. 29, Ft. McPherson, Ga.
REFRIGERANTS for third army installations for fiscal year 1957—various—IFB DA-09-177-56-49B—Bid Opening 20 June 56.

Purchasing Branch, Fort Monroe, Va.
INSTALL AIR CONDITIONING in Bldg. No. 5, Section F, Fort Monroe, Va. in accordance with plans and specifications—Job—IFB 44-036-56-48B—Bid Opening 22 June 56.
FURNISH 22 AND INSTALL 18 WINDOW TYPE AIR CONDITIONING UNITS in Conarc Buildings at Fort Monroe as designated by contracting officer—Job—IFB 44-036-56-53B—Bid Opening 21 June 56.

NAVY

Commandant of the Marine Corps, Washington, D. C. Code CSG.
AIR CONDITIONING UNITS, room, electric, motor driven, self-contained, Type I, Fed. Spec. 00-A-372 and Amend. 1 with exception—57 ea.—IFB 365 B Bid Opening 19 June 56.

District Public Works Office, Fifth Naval District, U. S. Naval Base, Norfolk, Va.
DEHUMIDIFICATION SYSTEM Bldg. 137 x low temperature room Bldg. 137. Air Supply Bldg. 133 at Marine Corps Air Station, Cherry Point, N. C. Deposit of 25 Dollars required for plans and specs.—Job—IFB NBY 635—Bid Opening 21 June 56.

District Public Works Office, Sixth Naval District, Naval Base, Charleston, S. C.
AIR CONDITIONING BUILDINGS 901 & H-54, Marine Corps Recruit Depot, Parris Island, S. C. $10 deposit required for plans and specs.—Job—IFB 5643/56—Bid Opening 26 June 56.
AIR CONDITIONING OF AIRCRAFT CONTROL TOWER, Bldg. 101, Marine Corps Air Station, Miami, Fla. $10 deposit required for plans and specs.—Job—IFB 5648/56—Bid Opening 22 June 56.

District Public Works Office, Eleventh Naval Dist., San Diego, Calif.
ADDITIONAL REFRIGERATION FACILITIES, including cutting, patching, earthwork, concrete construction, carpentry, roofing & sheet metal, electrical, field painting & misc. related work, Marine Corps Recruit Depot, San Diego, Calif. Deposit of $25 required for plans and specs.—Job—IFB 5468/56B—Bid Opening 26 June 56.

Officer In Charge of Construction, Naval Base, Training Command, Pensacola, Fla.
HEATING, PIPING, ELECTRICAL WORK IN BUILDING 709, Naval Air Station, Pensacola—Job—IFB 46120B—Bid Opening 26 June 56.

Officer In Charge of Construction, Naval Air Advanced Training Command, Corpus Christi, Texas.
ADDING 50 TONS AIR CONDITIONING SYSTEM COMPLETE, Modify Duct Work, fan, and coil unit in existing heating system; removing existing five ton conditioning unit and pump, providing a ton package air conditioning unit complete and connect to existing duct work and piping—Job—IFB NBY 1041B—Bid Opening 21 June 56.

Commandant of The Marine Corps, Washington, D. C. Code (CSG).
FOUNTAINS, SODA, size 4 and 8 ft., Purchase Description with Bid—15 ea.—379B—Bid Opening 25 June 56.

AIR FORCE

Contracting Officer, Topeka Air Force Depot, Topeka, Kan.
AIR CONDITION base chapels in accordance with Dwgs. FBS-R-120 and Specs. FORBES-30-56—Job—IFB 14-604-56-1139(B)—Bid Opening 18 June 56.

Warner Robins Air Materiel Area, Robins Air Force Base, Ga. Attn.: Director of Procurement and Production.
AIR CONDITIONING CIVILIAN DISPENSARY, Bldg. 1301, at Robins AF Base, Ga.—Job—IFB-265B, Local Purchase—Bid Opening 18 June 56.

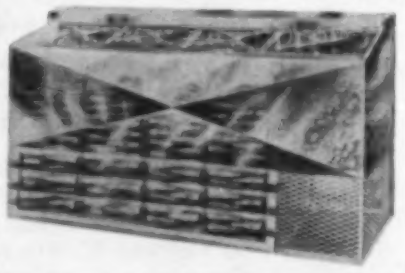
Base Contracting Office, Whiteman Air Force Base, Mo.
INSTALLATION OF AIR CONDITIONING AND FLOOR TILE, Base Chapel, Whiteman Air Force Base, Mo.—Job—IFB 22-606-56-91—Bid Opening 22 June 56.

Base Procurement Officer, Eglin Air Force Base, Fla.
INSTALLATION OF AIR CONDITIONING AND HEATING SYSTEMS for rooms in building 744, Eglin Air Force Base, Fla.—Job—IFB 08-603-56-719B—Bid Opening 21 June 56.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 5, 575 U. S. Courthouse, 219 S. Clark St., Chicago, Ill.
PARTIAL INTERIM AIR CONDITIONING at the U. S. Post Office, Courthouse and Custom House, Cleveland, Ohio—Job—IFB C&R 532—Bid Opening 6-19-56.
General Services Administration, Region 6, Business Service Center, 2306 E. Bannister Rd., Kansas City, Mo.
REFRIGERATION EQUIPMENT, etc., Indian School, Flandreau, S. Dak.—Lot—IFB CR 1659—Bid Opening 6-25-'56.

"A CASE OF COOL JUDGMENT"



FLO-COLD DRINKMASTER
STAINLESS STEEL CUBER — COOLER.
SOLD THRU DEALERS ONLY
WRITE
United Friguator Engrs.
MENOMINEE, MICH.
AVAILABLE IN SIZES 4 to 10 FT.

For more information about products advertised on this page use Information Center, page 32.

Soft Drink Exposition Set for Nov. 12 to 15

WASHINGTON, D. C. — The 1956 International Soft Drink Industry Exposition, sponsored by the American Bottlers of Carbonated Beverages, national trade association of the bottling industry, will be held Nov. 12 to 15 in Cleveland's Public Auditorium.

The exposition will be staged in conjunction with the association's 38th annual convention. Twenty manufacturers of refrigeration equipment are among the 189 suppliers signed up for exhibit space by June 1, it was stated.

They are:

APCO, Inc., New York City; Atlas Metal Works, Dallas; The Bevco Co., St. Louis; Bottlers Appliances, Inc., Salisbury, N. C.; Brewer Titchener Corp., New Milford, Pa.; Choice Vend Div., Central Tool Co., Hartford, Conn.; Champion Vender Co., Niles, Mich.; Crown Cork & Seal Co., Baltimore; General Vending Machine Corp., Philadelphia; Glascock Bros. Mfg. Co., Muncie, Ind.; Hedeman Products, Inc., Great Neck, N. Y.; Ideal Dispenser Co., Bloomington, Ill.; Kelvinator Div. of American Motors Co., Detroit; Kol Flo Kooler Co., Bayonne, N. J.; La Crosse Cooler Co., La Crosse, Wis.; Mojonnier Bros. Co., Chicago; Potter & Rayfield, Inc., Atlanta; S & S Products Mfg. Co., Lima, Ohio; True Mfg. Co., Inc., St. Louis; Vendorlator Mfg. Co., Fresno, Calif.

Dean Making Plates For Ice Bank Cooling

BROOKLYN—Dean Products, Inc. here is now producing cold plates designed for ice bank cooling, according to a recent announcement.

Ice banks utilize ice's latent heat to store refrigeration during slack periods for use during peak requirements, it was explained.

Both standard and special sizes of the cold plates are available, Dean said. One recent installation used 60 36 by 144-in. cold plates in one tank, it was noted.

M&V Supply Appointed Recold Distributor

OKLAHOMA CITY — M & V Supply Co. has been appointed exclusive distributor in the Oklahoma area for air conditioning and refrigeration products manufactured by Refrigeration Engineering, Inc., Los Angeles, under the Recold brand name, according to Hy Jarvis, president of Recold.

A. R. Morin and M. W. Voss are co-owners of M & V Supply Co. with offices at 1003 W. Reno here.

The firm, specializing in refrigeration, heating, ventilation, and air conditioning, covers a territory consisting of this state. Equipment representing their major lines, as well as shelf merchandise, is carried in stock, the firm reports.

M & V Supply has been in business 10 years. Prior to that each partner was affiliated with wholesalers and distributors, it was noted.

N. Y., Houston RACCAs Gain 5 New Members

CLEVELAND — The Refrigeration & Air Conditioning Contractors Association (National) recently listed new members of RACCA groups in Greater New York and Houston, it was announced at national headquarters here.

RACCA of Greater New York has three new members: Hoerning Engineering, Jamaica; Rimco Refrigeration Corp., Elmhurst, Long Island; and Kadar Air Conditioning Co., New York City.

New members of RACCA of Houston are Carrier Corp., Electric building, and York Corp., 2201 Texas Ave., it was continued.

Bohn Names Charles Davis

DETROIT — Bohn Aluminum & Brass Corp. announces the appointment of Charles W. Davis to its Detroit area sales staff.

Toss of a Coin Decides Award of $170,000 Contract In Albany, N.Y. Tie Bid

ALBANY, N. Y.—A toss of a coin decided the award of a $170,000 state contract. The prize went to Mechanical Installations, Inc. of Long Island City, which agreed to install refrigeration equipment for that amount in a new storehouse at Central Islip State hospital.

When the State Public Works Dept. opened bids on the contract, it found that Mechanical Installations and the Norman Heating Co., also of Long Island City, had entered identical low bids of $170,000, it was explained.

John Farrell, the department's building construction supervisor, tossed the coin in the presence of representatives of both concerns.

Mechanical Installations called the toss correctly.

Hundreds of feet of tubing and four evaporative condensers on the roof of this 30 story hotel, are part of the system furnishing cooled air to 600 of its 1,200 rooms.

Four Temprite #228 Oil Separators (which can be used with either F-12 or F-22) were connected to four of these 50 ton compressors. The objective was to muffle sound caused by the refrigerant gases traveling through the discharge tubing, but the net result is that the entire system now operates at *peak* efficiency because oil is kept in the compressor where it belongs.

Temprite Separators installed...

All Sound MUFFLED!

As usual, summer evenings in this large midwestern city were hot . . . and the city's largest hotel was in a dither. Guests were being disturbed.

Somebody was playing weird notes on a mysterious high-pitched organ on the roof. Ghostly sounds drifted down and down, past 30 floors into the interior court, startling many a guest into a state of insomnia.

Cause? Lengthy pipes of the air conditioning system were "singing" due to the normal refrigerant gas discharge vibrations.

Remedy? The local Temprite Dealer installed Temprite Oil Separators with each compressor. *All sound was muffled completely!* And beyond this, the hotel owners are assured of greatly extended compressor life, because oil is kept in the compressor and out of the highside.

These Temprite Separators have been in use with this system for more than one year. Countless similar applications in air conditioning and refrigerating systems have been in use for many years as an absolute must wherever trouble-free operating economy is demanded.

Manufactured by

TEMPRITE PRODUCTS CORPORATION

Box 72A • Birmingham, Michigan

Temprite

OIL SEPARATORS

Muffle Sound • Boost Operating Efficiency

Keep Oil in Compressor

Capacities from 1/6 to 225 tons

Refrigeration Problems
And Their Solution

By Paul Reed

For Service and Installation Engineers

Comparison of Refrigerants 12&22

(Continued)

From the data developed thus far, we see that if we have a compressor designed for use with 12 and run it at the same r.p.m., it will develop about 60% more capacity, but there is more to consider than capacity. Moreover, we are going to have to use a larger motor—about 60% greater horsepower in fact, if we are to get 60% greater capacity.

3 HP. FOR '12' VS. 5 HP. FOR '22'

For example, take a compressor whose displacement is sufficient to produce 3 tons on an air conditioner using 12, that is powered with a 3-hp. motor. If this same compressor were operated at the same r.p.m. it would be capable of developing about 5 tons with 22, but it would have to have a 5-hp. motor. Even then it might not be satisfactory, for unless its use with 22 were taken in consideration in its design, it would probably overheat and wear out rapidly.

TABLE 7

Comparison of 2 Tons with 12, With 5 Tons with 22

Compressor Displacement
3 Ton for 12
3 x 5.81 = 17.43 c.f.m.
5 Ton for 22
5 x 3.60 = 18.00 c.f.m.
Liquid Line 3 Ton for 12
½ in. O.D.
Liquid Line 5 Ton for 22
⅝ in. O.D.
Suction Line 3 Ton for 12
1⅝ in. O.D.
Suction Line 5 Ton for 22
1⅜ in. O.D.

If it was an open-type, belt-driven compressor used with 12, and we wanted to use 22, the 3-hp. motor could be changed to a 5 hp. and keep the same compressor r.p.m., provided that its manufacturer had anticipated this possibility in his original design; or we could keep the 3-hp. motor and reduce the compressor r.p.m. about 38% by changing motor pulleys, and get the same capacity with 22 as with 12.

If it is a hermetic motor-compressor, there isn't anything we can do about either changing from a 3-hp. to a 5-hp. motor, or reducing the compressor r.p.m.

A compressor manufacturer will sometimes build a compressor to be used on two or three sizes of units, or that can be used on either 12 or 22. If he does this, he must design and produce this compressor so that it is big enough for the toughest of the jobs he puts it on, or under the most severe conditions. If he uses this same compressor on both 3 and 5-hp. units, the compressor must really be a 5-hp. compressor, and is actually an oversize 3 hp.

That sounds wasteful, and a compressor manufacturer cannot afford to be wasteful. If he does this (and the practice is quite common), it is because of manufacturing volume; that is, it is because he can make a large quantity of 5-hp. compressors at lower cost than a small quantity of 5 hp. and a small quantity of 3 hp.

MANUFACTURER SHOULD APPROVE INTERCHANGEABILITY

If the compressor is to be used on either 12 or 22, the materials of which it is made must be such that they will have no harmful reaction with either refrigerant. Its valves must be large enough; its oil system must accommodate either of the two refrigerants; it must have enough surface to keep itself cool with either.

Its seal must hold the higher pressures, or hold tightly on the lower pressure, perhaps on a vacuum. The bearings must be sufficient for either 12 or 22. So, it is not a simple matter, even for the compressor manufacturer.

MOTOR, WIRING, STARTER, BELTS, PULLEYS

Nor does it stop at the compressor. Suppose that we have a 3-hp. condensing unit using 12, and we know that the compressor is the same one used by that manufacturer on a 5-hp. unit for 22.

We can then change from a 3 hp. to a 5-hp. motor ,and keep the same r.p.m. and use 22 and get about 60% more capacity because of the lower displacement per ton of 22.

Of course, changing from a 3-hp. to a 5-hp. motor will probably call for new wiring, for a 5-hp. motor draws about 60% more wattage and amperage than a 3 hp. It is even possible that the service entrance is not big enough.

And then there is the motor starter; it will have to be changed, too.

But don't forget the belts, which were sized for a 3-hp. load. Bigger or more belts will have to be used, and this will mean pulley changes in the size and number of belts and grooves.

BIGGER CONDENSER, WATER VALVE

And how about the condenser? Assuming that it is a 3-ton condenser, it will have to be changed, too. In the case of water-cooled condensers, it is sometimes possible, if cool water is available, to open up the water valve and pass a great deal more water through the condenser and still maintain the same or a low enough condensing temperature.

But the head pressure will be much higher with 22 than with 12. Will the water valve be big enough and can it be regulated to the higher condensing pressure? If not, it will have to be replaced.

If an air-cooled condenser is used, it will undoubtedly have to be replaced. Its capacity might be increased a few per cent by using a larger fan, thus putting more air over the surface and at a higher velocity. But power is required to move this additional air, and the motor is probably already loaded to about its allowable limit.

LIQUID LINES, SOLENOID AND EXPANSION VALVES

The liquid line is big enough for 22 if the capacity of the system remains the same. In fact, it is about 19% larger than necessary, but if we use a 5-hp. motor and increase the capacity about 60%, then the liquid line will have to be replaced with one with about one-third larger cross section. In our example, we would change from ½-in. O.D. to a ⅝-in. O.D. copper tubing.

If there is a liquid line solenoid valve, it will have to be replaced with a larger one. In getting the new one, the higher pressure of the 22 will have to be taken into consideration.

(Continued on next page)

ORIGINAL?

YES, STANDARD FOR ORIGINAL EQUIPMENT

REMCO SUPER-FLO FILTER-DRIER

Remco equipment, such as the Super-Flo Filter-Drier, is *Original Equipment Standard* to 112 American manufacturers of air conditioning and refrigeration equipment.

Why? Because the Super-Flo gives massive depth filtering with a fiberglas bag to remove *unprecedented* quantities of minute foreign particles. The unexcelled molded Remcal drying element will continue permanent refrigerant drying at peak efficiency even at liquid-line temperatures *thru 200° F.* And to top it all, there's excellent acid control and no measurable pressure drop!

Remco's Super-Flo for Freon 12 and 22 is available in brass or low-cost steel, with flare, sweat or silver brazing connections. Bursting pressure minimum for steel is 2400 psi, and for brass thru 2250.

For automotive air conditioning the Super-Flo is available as a Receiver-Filter-Drier Liquid Indicator combination. For any application, Super-Flo is standard for *original equipment.*

● **ATTENTION, WHOLESALERS!** Write today for Remco's O/E Standard Book for replacement parts *your* customers need.

O/E STANDARD **REMCO INC.** ZELIENOPLE, PA.

SIL-BOND · PHOSON

United's Brazing Alloys

Easy To Use
Super Strength
Meets
All Specifications

For mass production, or single purpose jobs . . . you're right every time when you braze with United's Phoson or Sil-Bond and low-temperature Sil-Flux. A brief glance at the chart below will show you how United's brazing alloys and Sil-Flux conform to all standard specifications, and are so certified!

See Standard Specs These Alloys Meet!

Name	MILITARY S-15395 (was Navy 47-S-13a)	FEDERAL QQS-561-d Army Chem. Warfare 196-131-80	Aero Mat'l Spec.	ASTM B260-52T & AWS A5-8-52T	U. S. Army 57-97-1A	% Silver	Solidus °F	Liquidus °F
Sil-Bond 50	IV	4	47708	—	—	50	1160	1175
Sil-Bond 50N	V	5	—	BAg-3	—	50	1195	1270
Sil-Bond 45	VII	—	—	BAg-1	7	45	1125	1145
Sil-Bond 35	VIII	—	—	BAg-2	8	35	1125	1295
Sil-40N	—	—	—	BAg-4	—	40	1220	1435
Sil-45	1	1	—	BAg-5	—	45	1250	1370
Sil-50	—	—	—	BAg-6	—	50	1275	1425
Sil-56T	—	—	—	BAg-7	—	56	1145	1205
Sil-72	—	—	—	BAg-8	—	72	1435	1435
Sil-65	11	2	—	BAg-9	—	65	1280	1325
Sil-70	—	—	—	BAg-10	—	70	1335	1390
Sil-85M	—	—	4766	BAgMn	—	85	1745	1760
Sil-54N	—	—	4772	—	—	54	1325	1575
Sil-20	—	—	—	—	—	20	1430	1500
Sil-20C	0	0	—	—	—	20	1140	1500
Sil-9	—	—	—	—	—	9	1510	1575
Phoson-15	111	111	—	BCuP5	—	15	1185	1300
Phoson-6	—	—	—	BCuP4	—	6	1185	1480
Phoson-0	MIL-C-20158 (was 47C3)	—	—	BCuP2	—	0	1305	1485
Sil Flux	SIFF4A	Air Force MIL-F-4683	AMS 3410	—	4-1121	—	FLUID 1100°F-1600°F	

Quality-control production from alloying to finished forms of wire, rod, ring strip and powder

Permanently United

UNITED WIRE AND SUPPLY CORP.
Brazing Alloy Division
PROVIDENCE 7, R. I. • OFFICES IN PRINCIPAL CITIES

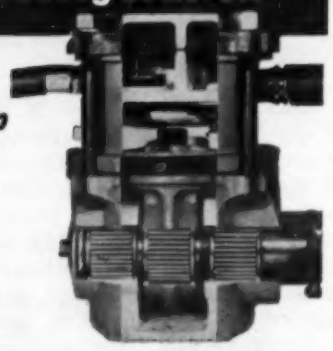
Free! fully-illustrated catalogs and price sheets.

LOOK TO UNITED FOR THE BEST IN ALUMINUM, COPPER AND BRASS TUBE AND WIRE.

ACE, the quality line for air conditioning and refrigeration

MODEL 77
Diaphragm Descaling Acid Pump

Descaling compounds can't affect this pump! All parts in contact with compounds are completely acid-resistant. Can be supplied as portable unit with pump and motor mounted on sturdy base and with convenient carrying handles.



Plus a complete line of centrifugal pumps

. . . sized to fit your needs. ¼ H.P. thru 7½ H.P. Easy to install and compactly built. Advanced features include exclusive baked-on lifetime finish to enhance appearance and resist corrosion, John Crane mechanical seal, and all-bronze one-piece impellers. Continuous duty motor.

Manufacturers representatives and distributors' inquiries invited.

ACE **PUMP CORPORATION**
140 HERNANDO ST. • MEMPHIS, TENN.

For more information about products advertised on this page use Information Center, page 32.

Refrigerants--

(Continued from preceding page)

The expansion valve will have to be replaced with one designed for 22, and it must of course be a 5-ton valve instead of a 3-ton valve. In case a capillary tube is used, we would have to replace it with one about 32% longer if we use the same I.D. tube, or if we keep the same length, the I.D. would have to be reduced about 7%.

These percentages were calculated on the basis of standard ton conditions, and are not true for other temperature conditions. Moreover, they are calculated valves, and in practice some cut-and-try would be necessary.

Please note, too, that these percentages are based on changing a 3-ton 12 unit to a 5-ton 22 unit. For the same capacity, and again at standard ton conditions, 22 will theoretically require a capillary tube 2.2 times as long as 12 if the I.D. remains the same.

If the length is to remain the same, the I.D. for 22 should theoretically be 82% of the I.D. for 12 for the same capacity at standard ton conditions.

EVAPORATOR CONSIDERATIONS

And then of course, there is the evaporator. It will adjust itself to the increased capacity by increasing the temperature difference between the evaporator and the air, but this means that the evaporator temperature and consequently the suction pressure will drop considerably.

This will cause a decrease in the compressor capacity, so that instead of getting a 60% increase, we will get only about a 45% increase. Moreover, the greater temperature difference changes humidity conditions.

So to get the full 60% increase, and to maintain the necessary humidity conditions, the evaporator must be replaced with one having about 60% greater capacity at the same temperature difference.

(To Be Continued)

FOR Supersensitive, Dependable, Leak Detecting . . .

Use a PREST-O-LITE Trade-Mark Leak Detector Outfit

Outfit includes leak detector stem, 3 ft. of suction hose, and tank adapter with needle valve for economy and exact flame adjustment.

Even the most minute leaks of halide refrigerant gases can't escape this extremely sensitive, leak detector outfit. Just attach to the valve of a lightweight MC acetylene tank. Detached from tank, this unit fits handily into tool box. Ask your jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.

GET IT FROM YOUR LINDE JOBBER

"Prest-O-Lite" and "Linde" are trade-marks of Union Carbide and Carbon Corporation.

Contractors Local Gains 28 Members

SPRINGFIELD, Ill. — Organized last March, the Air Conditioning and Refrigeration Contractors Association of Springfield has already acquired 28 members among local firms, Ray Pennington, president, announced recently.

Other officers of the new group are George Smith of George Smith and Son, vice president; and Ivan J. Falconer of Falconer Refrigeration Co., secretary-treasurer.

Purpose of the organization is to protect the reputation of the industry at the local level, according to Pennington. It is intended to promote better public relations and to protect the consumer from unethical business practices.

Local in character, the group plans no affiliation with any national or regional group. Membership is limited to established firms who maintain their own places of business.

Currently, the group is conferring with city officials to establish provisions in the city code to "stabilize installation and other practices of the industry and to give some element of control."

Air Cooled Employment

AUGUSTA, Ga.—The Georgia employment office in Augusta will move into a new $50,000 air conditioned brick building about July 1 at the corner of Telfair and Ninth Sts.

AIRO stands for

Fast, dependable, world-wide service.

Refrigeration and Air Conditioning parts and supplies.

Write for current Catalog

AIRO SUPPLY CO.

2732 N. Ashland Ave., Chicago 14, Ill.

20 Refrigerator-Freezer Features Is Amana Push To 'See Before You Buy'

AMANA, Iowa — A heavily-advertised "20/20" traffic-building promotion, featuring the give-away of Phil Silvers' prop glasses for children and a chance for adults to win a freezer-refrigerator, was launched in Amana dealer stores across the country beginning June 1. Theme of the campaign tells customers to "see clearly before you buy."

During June and July, consumers will be urged to go to dealers' stores to take part in the give-away and the drawing for an Amana freezer-plus-refrigerator. Then, as they register in the drawing, they are given the "'20/20' superiority test," a check list covering 20 features of Amana's new two-in-one appliance. At least one unit will be given away in each of Amana's 88 distribution areas.

Dealers will have a supply of the lens-less Phil Silvers glasses on hand to give away. The glasses carry the imprint, "Sergeant Bilko says, 'Buy Amana.'"

The promotion, designed to build traffic and sales for Amana dealers, will be backed by extensive television, magazine, and newspaper advertising. Phil Silvers, star of the Amana-sponsored Phil Silvers television show, will urge viewers to "Go to your Amana dealer and take Amana's amazing '20/20' test."

Built-In Combination To Be Offered In Fall By Norris-Thermador

NEW YORK CITY—A built-in, combination refrigerator freezer with stainless steel front will be introduced under the "Thermador" and "L & H" labels sometime this fall by the Norris-Thermador Corp. of Los Angeles.

Kenneth T. Morris, president of the company, announced plans to enter the refrigeration field at the New York Society of Security Analysts meeting.

William E. Cranston, first vice president of the firm, added that the combination unit would have about 10 cu. ft. of refrigerator space and 4 cu. ft. of freezer space. The freezer would be at the bottom. Both sections would operate off a single compressor.

Cranston indicated that tooling for the new unit is already under way and that distribution would be through L & H and Thermador dealers.

Zep To Build Air Conditioned Laboratory Near Chattanooga

ATLANTA—At a cost of approximately $750,000, Zep Mfg. Corp. of Atlanta will construct a new manufacturing plant and technical laboratory in the Chattanooga industrial area.

Officials said the technical laboratory will be expanded to several times the present installation here and will be completely air conditioned.

Kelvinator Appoints Louchheim Distributor

DETROIT — Distribution of "Kelvinator" and "Leonard" products in the Philadelphia area will be handled by the Stuart F. Louchheim Co., effective July 1, H. A. Valencourt, Kelvinator eastern regional manager, announced recently.

Valencourt said the Raymond F. Rosen Co., Inc., of Philadelphia, Kelvinator distributor for 25 years, will relinquish the franchise June 30, by mutual consent.

Under the terms of the new agreement, the Louchheim company will serve Kelvinator and Leonard dealers in the same territory formerly covered by the Rosen company, including eight counties in eastern Pennsylvania, 10 in southern New Jersey, and most of Delaware.

Brooklyn Owner Fined for Abandoned Ice Box Death

NEW YORK CITY—A $25 fine was imposed on Henry Greenberg of Brooklyn in whose refrigerator five-year-old Ivison Austin, Jr. lost his life recently.

The fine was levied by Magistrate Anthony M. Lovoti of Rockaway Magistrates Court under New York City's abandoned refrigerator law.

Greenberg had left the refrigerator on the porch of his summer home in Rockaway Beach. Ivison lived across the street.

MADE TO ORDER FOR THE REFRIGERATION INDUSTRY

Tough, flexible vinyl plastic cover plus the well known resiliency of sponge rubber.

Rugged Vinyl Outer Jacket—Can't crack, check, oxidize.

Highly Grease Resistant—Sheds oils, greases like water off a duck's back!

Weather-Proof—Non-deteriorating under long exposure to hottest or coldest weather conditions.

Long-Wearing Easily Cleaned

Cat. No.	Cushion Dia.	Flange Width	Overall Width
V-1212	1/2"	1/2"	1"
V-3812	3/8"	1/2"	7/8"
V-5858	5/8"	5/8"	1-1/4"

NOW USED ON:

- Refrigerated display cases.
- Walk-in coolers.
- Weather-exposed freezer doors.
- Refrigerated truck bodies.
- Railroad cars both refrigerated and non-refrigerated.
- and on many other applications.

Jarrow gaskets can be custom-made to your exact specifications. Consult with experienced Jarrow engineers about your gasket problems, or send us your blueprints.

SEND FOR JARROW CATALOG C-300

In it you'll find gaskets for every application in the refrigeration and air conditioning industries. Available in extruded rubber—sponge rubber—vinyl and rigid plastics—rubberized fabric and waterproof cotton webbing.

JARROW PRODUCTS INC.

Almost a Third of a Century of Gasket Experience

420 NORTH LA SALLE STREET • CHICAGO 10, ILL.

Problems of Solar Heating Include

Low Cost Energy Collector, Size of Storage System, Suitable Circulating Fluid, Energy Transport System

CHICAGO — Many problems must be solved before the use of solar energy becomes a practical competitive method of home heating, but a test installation in a Boston area gave "very encouraging" results, handling 75% to 85% of the seasonal load for five years, according to Prof. A. L. Hesselschwerdt of Massachusetts Institute of Technology.

Construction should start soon on a second house employing solar heating, Prof. Hesselschwerdt disclosed before the National Warm Air Heating and Air Conditioning Association at its first technical conference, which was held at the Edgewater Beach hotel here recently.

More Research, Development Needed To Make System Competitive, Economical

"It has been found that to produce a solar energy system that will be competitive, from an economical standpoint with conventional systems will require much more research and development work, particularly with regard to collector design.

"Moreover," he emphasized, "the design of such a system requires the closest cooperation between architect, engineer, and contractor. Items such as ductwork, or piping, which are important in conventional systems become very criticial in systems of this type and unless properly designed, the cost of circulating the fluid can sometimes overbalance the gain in using solar energy."

Solar Heating Components

Components of a solar heating system, Prof. Hesselschwerdt explained, consist of "a solar energy collector, two energy transport systems, an energy storage system, a system for the transfer of heat to the space, and a suitable fluid for use in the energy transport system.

"In operation solar energy falls upon the collector and a portion is transferred to the circulating fluid. The heated fluid passes through the energy transport system to the energy storage system, the latter acting as a reservoir.

"From the energy storage system the fluid passes through the second energy transport system to the space being heated, and the heat may be transferred to the space by any suitable method. It will be noted that in such a system the combination of collector, energy transport system, and the energy storage system have replaced the conventional 'heater-burner unit," he said.

Problems Enumerated

"The design of such a system presents many problems over and above those which normally face the heating engineer," he said. "Some of the outstanding problems are the design of a low cost solar energy collector, the type and size of the storage system, the selection of suitable circulating fluids, and the design of the energy transport systems.

"Much work has been done on these problems, but many of the problems are still far from a practical solution," he admitted.

The first M.I.T. solar energy house was in continuous service from January, 1949, to December, 1955, when it was destroyed by a fire apparently caused by wiring, he said.

"In addition to being a source of data, the house furnished pleasant living for several families," it was commented.

"This single story house employed a south-facing collector having 400 sq. ft. of surface and consisting of two glass plates. The bottom of the collector was copper, blackened on the side facing the sun, to which were soldered ⅜-in. copper tubes, 6 in. on center and 8½ ft. long.

"Water was circulated through the tubes and the heated water was delivered to a storage tank 36 in. in diameter, 30 ft. long, and having a capacity of 1,200 gals. Warm water from the storage tank was circulated to the ceiling coil of a panel heating system.

"In order to supplement the solar system, immersion heaters electrically operated were installed in the storage tank, and the use of auxiliary heating by electricity was solely for the purpose of accurately determining the magnitude of the auxiliary energy," explained Prof. Hesselschwerdt. "Later electric glass panels in the space were used instead."

30% of Solar Energy Was Usefully Used

Data indicated, he said, that about 30% of the solar energy incident on the collector was usefully used for space heating. Although there would be 667,000 B.t.u. per sq. ft. solar energy incident upon a plane facing south and inclined 57° if it were outside the earth's atmosphere, this value is cut to 219,000 B.t.u. per sq. ft. at sea level.

"The collector absorbed 155,000 B.t.u. per sq. ft., and the energy actually available for space heating was 67,000 B.t.u. per sq. ft.," Prof. Hesselschwerdt revealed. "The major loss of 448,000 B.t.u. per sq. ft. was incurred as the solar energy passed through the atmosphere surrounding the earth and is completely unavoidable."

Solar Heating Handled 69 to 82.3% of Load

Performance data which he presented for four heating seasons showed the solar heating system handled from 69% to 82.3% of the seasonal load. Latter ranged from 35,414,000 B.t.u. to 40,022,000 B.t.u. Best performance of the solar system was not at the lowest overall seasonal load, nor did the reverse hold true, it would appear.

The second house, which is in final stages of design, will employ a solar system similar to the first, but will have an oil-fired unit for auxiliary hot water heat and will accomplish final heat transfer through a forced warm air system.

Collector plate will be larger and will be used for heating domestic hot water in spring, summer, and fall. Incidentally, a conventional summer air conditioning system will also be installed.

NEMA Publishes Guide for Planning of Residential Electric Heating Jobs

NEW YORK CITY—A guide for use in planning the installation of residential electric heating equipment and in estimating operational costs of such equipment has been produced by the Electric House Heating Equipment Section of the National Electrical Manufacturers Association.

The manual is designed to assist utilities, dealers, contractors, and distributors, according to Robert E. Pequignot, chairman of the NEMA Electric House Heating Equipment Section. Copies are now available for 25 cents each from NEMA, 155 E. 44th St., New York 17.

The manual contains recommendations on amount of insulation for electrically heated homes, a standard method for computing heat loss, a method of selecting the proper size of electric heating equipment, and a formula for estimating the annual operating costs for electric heating installations.

"As contrasted to the B.t.u. method used in heating manuals for other fuels, this manual is expressed in watts, which is familiar to this industry.

"The manual contains maps and tables so that the calculations can be made for each area of the United States. A calculation on a sample home is included illustrating how the manual can be utilized."

The NEMA Section hopes that this manual will become the accepted installation guide for use in the rapidly-growing electric heating industry.

It is estimated that there are around 300,000 homes completely heated by electricity today and that another 40,000 new homes will be added this year.

Gray Named To Newly Created Bryant Post

INDIANAPOLIS — Appointment of Gordon N. Gray to the newly-created position of manager of manufacturing for all of Bryant's plants has been announced by Ronald N. Campbell, Bryant general manager.

G. N. Gray

Gray, who has been plant manager of Bryant's headquarters plant at Indianapolis since 1953, takes over manufacturing supervision of the company's plants at Tyler, Texas, and New Lexington, Ohio, as additional duties.

In his new position, Gray will supervise manufacturing of residential furnaces and air dryer equipment at Indianapolis; air conditioning equipment, water heaters, and unit heaters, at Tyler; and specialized controls for heating and appliance field.

AAF Declares Quarterly Dividends; Bookings Up

MOLINE, Ill. — Regular dividends were declared recently by the directors of American Air Filter Co., Inc., at their quarterly meeting here. Dividends approved amounted to 40 cents per share of common stock, 18¾ cents per share on 5% preference stock, and $1.75 per share on the 7% preferred stock, payable July 5 1956, to stockholders on record June 20, 1956.

W. G. Frank, president, reported that shipments for the first six months of the current fiscal year were $15,800,000 as compared with $12,900,000 for the same period in 1955.

Frank also revealed that unfilled orders at April 30, 1956, were $12,250,000 compared to $11,300,000 at the beginning of the fiscal year.

Bookings during the month of May reached a high of $5,700,000 which included an order of $2,510,523 for Herman Nelson military portable heaters.

FURNAS ELECTRIC CONTROLS do the best job for AIR CONDITIONING and REFRIGERATION

NEW—4 SIZES

For the first time, an ampere size to match your single and polyphase starter requirements for current rated motors through 550 volts. Now you can choose from 20-30-35-50 ampere sizes. Look for these features: 1—Each pole carries full current—no poles connected in parallel. 2—Silver Cadmium Oxide contacts—longer life. 3—Magnets require less watts thereby reducing transformer sizes and thermostat contact load—savings in cost and space.

Write today for Bulletin 5610—1111 McKee Street, Batavia, Illinois. A3

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SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

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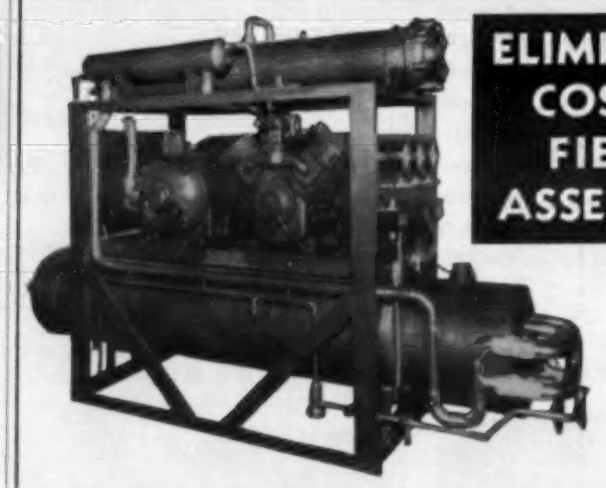

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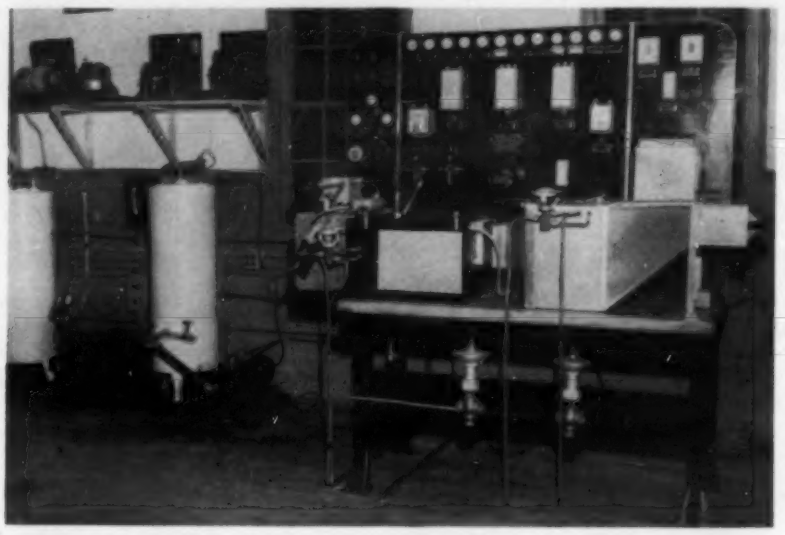
For more information about products advertised on this page use Information Center, page 32.



PORTION of laboratory at University of Houston which will be used in course on automatic controls. Several firms within the industry are cooperating with the university in this project.

Automatic Heating, Cooling Control Course Launched by U. of Houston

HOUSTON, Texas — Growing importance of automatic controls in contemporary air conditioning, refrigeration, and heating systems has prompted the University of Houston's Air Conditioning and Refrigeration Department to launch a new course in this specialized field.

Complexity of present day control systems has resulted in an increasing demand for men with backgrounds in controls, in the service, maintenance, installation, and design fields.

Along with a review covering all phases of heating and cooling application, content of the course includes a study of the functions of primary controls, secondary controls, and combinations applicable to hot water, steam, and direct gas-fired heating systems, as well as direct expansion and chilled water cooling systems.

Multiplexing of various heating and cooling systems for proper psychrometric conditions in year-round air conditioning is also taught.

Electric, pneumatic, and electronic controls are considered in various applications as well as in combination.

Through the courtesy of Penn Controls, Inc., Johnson Service Co., Powers Regulator Co., and General Controls Co., the department has developed a highly functional control laboratory.

Both Johnson Service Co. and Minneapolis-Honeywell Regulator Co. representatives have assisted in outlining, organizing material, and lecturing in various phases of the course.

W. H. Willson, chairman of the department, noted that student response to the new course has been encouraging, and that prerequisites include work in electricity, thermodynamics, refrigeration, and summer and winter air conditioning.

Gibson Names Outlet In Virginia Area

GREENVILLE, Mich. — Appointment of Tower-Binford Electric & Mfg. Co. of Richmond, Va. as distributor of Gibson appliances in the central Virginia area was announced recently by W. C. Conley, vice president in charge of Gibson sales for the Gibson Refrigerator Co.

DuPont Shipping 'Freon-12' from Antioch Plant

WILMINGTON, Del. — Cylinder loading and shipping facilities at the du Pont Co.'s new multi-million dollar plant for manufacture of "Freon" refrigerants and aerosol propellents at Antioch, Calif., was put into operation recently.

Henceforth, the company announced, shipments of "Freon-12" refrigerant for customers in the area west of the Rockies will be made from the Antioch location.

Bulk supplies of the chemical will be shipped to the Antioch plant site in tank cars from an existing manufacturing unit at East Chicago, Ind., for repackaging in ton cylinders and smaller containers.

Manufacturing facilities being built on a 500-acre tract along the San Joaquin river two miles east of Antioch will be completed and in operation about Sept. 1, with "Freon-11" and "Freon-12" as initial products.

Completion of warehousing and reloading facilities is being rushed, the company's "Kinetic" Chemicals Div. explained, to speed up delivery service on "Freon-12" refrigerant in advance of the plant opening.

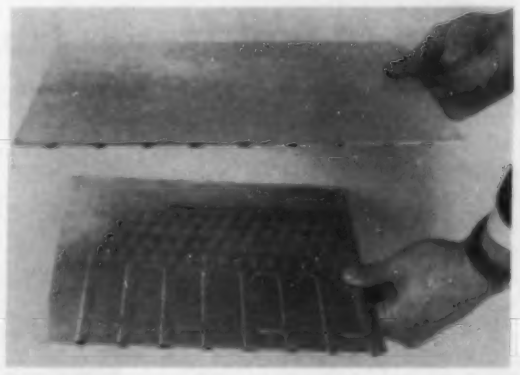
Customers in the western district already have been asked to return empty refrigerant and propellent cylinders direct to the Antioch location instead of the former East Chicago shipping point. The change is expected to provide faster refunds.

After Sept. 1, the company said, it is anticipated that all Western district requirements for "Freon-11" and "Freon-12" compounds will be supplied from Antioch production.

"Freon-22" refrigerant, produced at the du Pont Co.'s Louisville, Ky. plant, also will be repackaged and warehoused at the Antioch site after Sept. 1 to provide fast service for West Coast users.

Manitowoc Distributor

MANITOWOC, Wis. — Ray Fredrickson, manager of field sales, Manitowoc Equipment Works, has announced the appointment of Ray Distributing Co., Savannah, Ga., as distributor of its upright freezers and "2-Zone" combination refrigerator-freezers in southern Georgia and northern Florida.



REYNOLDS "Tubed Sheet One-Side-Flat," shown on top, is said to offer many advantages over previous type shown on bottom.

Reynolds 'Tubed Sheet One-Side-Flat' Said To Eliminate All Tubing Joints

LOIUSVILLE, Ky. — A new tubed sheet product with one side flat and the entire tubing pattern expanded on the other side has been developed by researchers of the Reynolds Metals Co.

Tubed sheet—which was first marketed only a year and a half ago—was widely adopted for evaporators by some manufacturers of refrigerators and freezers almost immediately.

Other applications under study include air conditioning, heating, and cooling units in aircraft, automotive radiators, and other heat exchanger uses.

According to W. G. Reynolds, vice president, "the new process, on which we have applied for patents, makes Reynolds Metals able to offer industry complex non-parallel tubing patterns integral with a sheet that is flat on one side—and do it at low cost. If a pattern can be drawn on paper, we can produce it."

This latest development called "Tubed Sheet One-Side-Flat," is a companion product to the original Tubed Sheet which has both sides expanded to form passageways within the sheet.

According to the company, both types eliminate the necessity of bending a complicated pattern in tubing and then brazing the tubing to a sheet. Instead, Reynolds builds the tubes right into the sheet, eliminating all of the tube joints.

In making either type, two sheets of aluminum are metallurgically bonded together by heating and rolling under heavy pressure after one has been "printed" with the desired tube pattern using an "ink" which prevents bonding of the printed areas.

This is then rolled out thinner and longer and hydraulic pressure is used to expand the passageways—on both sides of the original type, and in the new process on only one side of the sheet.

Reynolds is already accepting orders for refrigerator and home freezer components made of Tubed Sheet One-Side-Flat, it was stated.

Reynolds reveals that its flat-sided tube sheet is already under study by aircraft manufacturers as a possible solution to what aeronautical scientists call "the heat barrier."

At extremely high speeds, air friction will heat a plane's surface so much that it will be weakened. Aircraft and missile designers must either switch to heavier, more expensive metals and refrigerate the crew and delicate precision instruments; or they must beat the "heat barrier" where it originates—at the plane's surface.

This second method—lighter, less costly, more direct—seems preferable. Designers are now considering passing a refrigerant through aircraft skins made of Reynolds flat-sided tubed sheet.

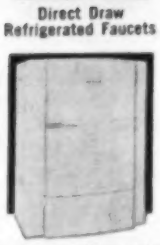
Still another possible application foreseen for the new product by Reynolds engineers is radiant baseboard heating in which hot water would be circulated through the passageways to heat a room.

In this case, the smooth side would face the interior of the room and could be formed to a decorative shape. Surface could be plain or embossed; it could be color anodized, painted, porcelain enameled, or have any of the numerous other mechanical, chemical, or coated finishes which can be applied to aluminum.

Direct Draw Refrigerated Faucets

Metal Walk-In Cooler

Cubemaker


Upright Low Temperature Freezer

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Dealers are Making Money!

Bakery Bar Model Heads Norge Freezer Line for '57

CHICAGO — A home freezer with a "built-in bread box" heads the 1957 freezer line introduced recently by Norge Div., Borg-Warner Corp.

Upright model VFC-187 has an exclusive fold-down bakery bar at the bottom of the door. Available in white and pastel shades of pink, yellow, and green, it is one of the four upright and three chest type freezers in the 1957 line.

R. C. Connell, Norge vice president of sales, said Norge hopes to double it's share of the freezer market this year.

Features include a defrost drain and a "Dri-wall" condenser which assures a dry cabinet exterior in any climate.

The top freezer, which stores more than 640 lbs. of frozen foods, has a roll-out utility tray. An ice keeper holds hundreds of cubes which do not stick together.

Special sort and stack food guards prevent food from tumbling out as the door opens. They also pull down to become shelf extensions for easy stacking of food when rearranging items.

"Safety first" features include an exterior light which is constantly lit when the freezer is operating normally. Placed at eye level inside the Norge monogram, the light assures the homemaker that inside temperature and current is normal.

Additional features of the custom deluxe model include a package dispenser which holds up to 24 frozen food packages; a juice bar which accommodates up to 30 cans of frozen juice or 10 cans of large size frozen soups; and adequate storage for ice cream cartons.

A slight touch of the elbow or hand swings open the "touch-a-matic" door, and slight closing pressure locks the door.

1957 NORGE freezer line is headed by model VFC-187 featuring bakery bar, roll-out ice cube keeper, and small-item tray, and food index system.

The chest-type Norge freezers have a special sharp-freeze compartment. They contain many of the conveniences of the upright, including the Dri-wall condenser, safety-light, and safety lock.

Suggested list prices for the line are:

Model	Capacity (cu. ft.)	Suggested List
VFC-187*	18.3	$519.95
VFD-187*	18.3	339.95
VFC-147*	14.3	439.95
VFD-147*	14.3	319.95
F-207‡	20	429.95
F-167‡	16	349.95
F-107‡	10	279.95

*Upright
‡Chest-type

Nebraska Egg Law Is Boon to Refrigeration Firms, Egg Industry

LINCOLN, Neb.—Commercial refrigerator dealers in Nebraska have reaped a harvest, while both the egg dealers and the producers feel that their lots have been improved by Nebraska's new egg law. The law, passed by the 1955 State Legislature, became effective then.

Gould Flagg, head of the inspection division of the State Agriculture Department, estimated that over 1,800 egg dealers have purchased refrigeration equipment as a result of the law.

The new law is aimed at improvement of egg quality. It was formulated by members of Nebraska's poultry industry. Principal differences from the old state egg law are:

1. It is unlawful for retailers to sell ungraded eggs. This does not mean that producers must grade their eggs before they sell them, even if they are purchased by a private party.

2. Dealers are required to keep eggs at a temperature under 60° and under 70% relative humidity after they are received at the first point of purchase.

3. License fees have been increased to provide revenue for enforcement of the law.

Flagg reported that dealers who anticipated the new law and put in refrigerated storage and vending equipment last spring report they have already paid for the equipment by maintaining egg quality and keeping the sales curve up during the hot summer months.

"These fellows really feel that refrigeration pays," he said.

NEMA Firms Sell 381,485 Refrigerators In March

Summary for March and First Three Months, 1956
Complete Electric Household Refrigerators Only—Sales by Sizes—Units

MARCH (12 Companies)

	Size	Domestic	Canadian	Foreign	Total
1.	3 cu. ft. (3.4 & under)	....	....	....	....
2.	4 cu. ft. (3.5 to 4.4)	696	....	7	703
3.	5 cu. ft. (4.5 to 5.4)	....	....	....	....
4.	6 cu. ft. (5.5 to 6.4)	479	....	8	487
5.	7 cu. ft. (6.5 to 7.4)	10,671	849	1,748	13,268
6.	8 cu. ft. (7.5 to 8.4)	51,874	1,931	10,160	63,965
7.	9 cu. ft. (8.5 to 9.4)	19,338	1,618	1,849	22,805
8.	10 cu. ft. (9.5 to 10.4)	66,468	3,715	6,802	76,985
9.	11 cu. ft. (10.5 to 11.4)	49,592	997	3,353	53,942
10.	12 cu. ft. (11.5 to 12.4)	93,042	1,342	2,986	97,370
11.	13 cu. ft. (12.5 & over)	49,742	664	1,554	51,960
12.	**Total**	**341,902**	**11,116**	**28,467**	**381,485**
	Refrigerators Having Two Exterior Doors (All Sizes Included In Above)	**74,071**	**1,314**	**2,815**	**78,200**
	Included In Above)	**179,706**	**2,471**	**5,492**	**187,669**

FIRST THREE MONTHS (12 Companies)

	Size	Domestic	Canadian	Foreign	Total
1.	3 cu. ft. (3.4 & under)	....	....	....	....
2.	4 cu. ft. (3.5 to 4.4)	2,286	....	24	2,310
3.	5 cu. ft. (4.5 to 5.4)	....	....	....	....
4.	6 cu. ft. (5.5 to 6.4)	2,191	....	8	2,199
5.	7 cu. ft. (6.5 to 7.4)	22,689	1,856	2,600	27,145
6.	8 cu. ft. (7.5 to 8.4)	138,080	3,344	27,447	168,871
7.	9 cu. ft. (8.5 to 9.4)	43,963	3,377	3,338	50,678
8.	10 cu. ft. (9.5 to 10.4)	158,828	5,737	12,671	177,236
9.	11 cu. ft. (10.5 to 11.4)	178,083	2,970	9,053	190,106
10.	12 cu. ft. (11.5 to 12.4)	214,856	2,509	5,873	223,238
11.	13 cu. ft. (12.5 & over)	125,890	1,517	3,127	130,534
12.	**Total**	**886,866**	**21,310**	**64,141**	**972,317**
	Refrigerators Having Two Exterior Doors (All Sizes Included In Above)	**179,706**	**2,471**	**5,492**	**187,669**

Participating companies: Admiral Corp.; Crosley & Bendix Home Appliances Div., Avco Mfg. Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., a Div. of General Electric Co.; Kelvinator Div., American Motors Corp.; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Servel, Inc.; Westinghouse Electric Corp.; Whirlpool-Seeger Corp.

March Freezer Sales by NEMA Firms Hit 55,926

Summary for March and First Three Months, 1956
Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

Farm and home freezers complete with high and low side and cabinet, where 50% or more of the net cabinet capacity is designed for the freezing and/or storage of frozen foods.

MARCH, 1956

	Size	Domestic	Canadian	Foreign	Total
1.	6 cu. ft. (6.4 & under)				
	Chest Models	*	*	*	*
	Upright Models	*	*	*	*
2.	7 & 8 cu. ft. (6.5 to 8.4)				
	Chest Models	*2,096	*27	*23	*2,146
	Upright Models	*952	*1	*67	*1,020
3.	9 & 10 cu. ft. (8.5 to 10.4)				
	Chest Models	987	83	25	1,095
	Upright Models	*	*	*	*
4.	11 & 12 cu. ft. (10.5 to 12.4)				
	Chest Models	*	*	*	*
	Upright Models	*5,221	*153	*94	*5,468
5.	13 & 14 cu. ft. (12.5 to 14.4)				
	Chest Models	*10,794	*144	*157	*11,095
	Upright Models	5,273	62	58	5,393
6.	15 cu. ft. (14.5 to 15.4)				
	Chest Models	3,955	438	148	4,541
	Upright Models	*	*	*	*
7.	16 & 17 cu. ft. (15.5 to 17.4)				
	Chest Models	4,696	....	13	4,709
	Upright Models	*4,886	*4	*6	*4,896
8.	18 & 19 cu. ft. (17.5 to 19.4)				
	Chest Models	2,462	8	35	2,505
	Upright Models	4,670	8	16	4,694
9.	20 & 21 cu. ft. (19.5 to 21.4)				
	Chest Models	4,769	433	14	5,216
	Upright Models	*	*	*	*
10.	22 cu. ft. (21.5 & over)				
	Chest Models	499	13	2	514
	Upright Models	*2,633	*1	*....	*2,634
	Total Chest Models	**30,258**	**1,146**	**417**	**31,821**
	Total Upright Models	**23,635**	**229**	**241**	**24,105**
	Total All Models	**53,893**	**1,375**	**658**	**55,926**

FIRST THREE MONTHS, 1956

	Size	Domestic	Canadian	Foreign	Total
1.	6 cu. ft. (6.4 & under)				
	Chest Models	*	*	*	*
	Upright Models	*	*	*	*
2.	7 & 8 cu. ft. (6.5 to 8.4)				
	Chest Models	*5,712	*97	*61	*5,870
	Upright Models	*1,490	*1	*70	*1,561
3.	9 & 10 cu. ft. (8.5 to 10.4)				
	Chest Models	3,253	164	50	3,467
	Upright Models	*	*	*	*
4.	11 & 12 cu. ft. (10.5 to 12.4)				
	Chest Models	*	*	*	*
	Upright Models	*17,705	*536	*485	*18,726
5.	13 & 14 cu. ft. (12.5 to 14.4)				
	Chest Models	*26,751	*392	*1,070	*28,213
	Upright Models	16,262	211	258	16,731
6.	15 cu. ft. (14.5 to 15.4)				
	Chest Models	17,037	872	324	18,233
	Upright Models	*	*	*	*
7.	16 & 17 cu. ft. (15.5 to 17.4)				
	Chest Models	10,821	....	45	10,866
	Upright Models	*13,628	*33	*26	*13,687
8.	18 & 19 cu. ft. (17.5 to 19.4)				
	Chest Models	9,617	94	85	9,796
	Upright Models	11,683	67	70	11,820
9.	20 & 21 cu. ft. (19.5 to 21.4)				
	Chest Models	12,779	632	52	13,463
	Upright Models	*	*	*	*
10.	22 cu. ft. (21.5 & over)				
	Chest Models	2,125	15	12	2,152
	Upright Models	7,280	5	5	7,290
	Total Chest Models	**88,095**	**2,366**	**1,699**	**92,060**
	Total Upright Models	**68,048**	**853**	**914**	**69,815**
	Total All Models	**156,143**	**3,119**	**2,613**	**161,875**

*Indicates data has been combined in other size categories.

Participating companies: Admiral Corp.; Ben-Hur Mfg. Co.; Carrier Corp.; Crosley & Bendix Home Appliance Div., Avco Mfg. Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; Kelvinator Div., American Motors Corp.; Maytag Co., The; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Revco, Inc.; Sub-Zero Freezer Co., Inc.; Victor Products Corp.; Westinghouse Electric Corp.; Whirlpool-Seeger Corp.; Wilson Refrigeration, Inc.; Servel, Inc. (out 3-1-56).

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Warren Refrigerators

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Tell me about a Typhoon Franchise in my territory. Send me bulletin A-11.

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City_____ Zone____ State____

For more information about products advertised on this page use Information Center, page 32.

CEILING-MOUNTED packaged air conditioners cool the State Line Supermarket on the northern outskirts of South Bend, Ind. Picture is one of two 7½-ton, water-cooled General Electric units installed in the market recently along with a cooling tower. To suspend the units, bolts were run through steel plates placed on the roof across 2 by 8-in. wooden beams. The air conditioners are among the first of their type sold in the South Bend area by Baker-Ward, Inc.

G-E To Aid Dealers, Buyers In Kitchen, Laundry Remodeling

LOUISVILLE, Ky.—In an effort to give retailers a share in the kitchen and laundry area remodeling business, General Electric Co. reportedly made available nationally on June 1 two new financing plans.

One plan aids dealers engaged in kitchen remodeling work. The other is a consumer plan providing financing up to five years and permitting monthly payments as low as $20 after a 10% down payment.

It was said that under the plan any homeowner or long-term renter with adequate credit can have an entire project financed through General Electric Credit Corp.

Must Purchase One Built-In, One Other Major Appliance

This service will be available to such persons who purchase at least two new major appliances —one of which must be a built-in unit, or one requiring plumbing and who intend to make structural changes in the kitchen.

Also, GECC will finance the dealer's outlay for major appliances used in kitchen remodeling work until the installation in a customer's home is completed and accepted.

GECC Continues Finance Operating Display Kitchen

In addition, GECC will continue to finance a complete operating display kitchen for 10% down and the balance amortized in equal monthly instalments over a period of 12 months, it was pointed out.

Or, the company said, dealers will also still be able to finance a non-operating display kitchen for 10% down and the balance amortized in three months, with normal provisions for 30-day extension.

Interest Rates 'As Good' As Private Financing

According to G-E, the interest charges on the new plans are "at least as good" as most private organizations offer.

Consumer-plan interest rates, on a per annum basis, reportedly would be 6% up to $2,000 unpaid balance, 5.5%, between $2,000 and $3,000; and 5.25%, more than $3,000 unpaid balance. Interest rates on the dealer plan had not yet been established, it was said.

In the past, GECC has financed appliances but not such jobs as rewiring, laying new floors, building partitions, painting, and like work often required in kitchen remodeling. The new consumer plan is said to permit financing of all these services in a single package.

Apparently at least one of the following appliances must be included in order to obtain the new GECC consumer finance plan: wall-mounted refrigerator, under-counter food freezer, dishwasher or food waste disposer, electric water heater, under-counter washer-dryer, built-in range, or built-in air conditioner (if installed in kitchen or laundry area). Application of the plan will apparently also be only through franchised G-E dealers.

Williams Represents Baltimore Aircoil

BALTIMORE — Si Williams has been appointed sales representative of Baltimore Aircoil Co., Inc. for northern Ohio and western Pennsylvania, it was announced by William E. Kahlert, vice president in charge of sales and advertising.

S. J. Williams

Williams, with 10 years of application experience in refrigeration and air conditioning, most recently was manager of product research, Research Div., Whirlpool-Seeger Corp.

A mechanical engineer of Purdue university, Williams is a member of the American Society of Mechanical Engineers.

F. J. Stokes Machine Has Name Change Ok'd

PHILADELPHIA — F. J. Stokes Machine Co. here will change its name to F. J. Stokes Corp. effective July 1, Francis Dougherty, Stokes' president, announced recently. Stockholders have approved the change.

The new designation was selected as being more in keeping with the broad range of the company's interests and the varied line of production and processing equipment which it has developed.

Among the products it manufactures is freeze drying equipment for pharmaceutical use.

Distributor Named

ST. JOSEPH, Mich. — West Michigan Electric Co., Benton Harbor, Mich., has been appointed distributor of RCA Whirlpool freezers and air conditioners.

REFRIGERATION OR AIR CONDITIONING ENGINEER TO OPEN CLEVELAND OFFICE

If you are a technical graduate or equivalent, 25 to 32 years of age, with experience in refrigeration and/or air conditioning, an opportunity for advancement with an outstanding and progressive company is available. After a factory training program, very interesting work awaits you calling on contractors, wholesalers and manufacturers of all types of equipment. Very liberal salary, bonus and expense allowance arrangements.

Write BOX A5557, Air Conditioning & Refrigeration News

Servicemen, Salesmen, Dealers!

NOW ...AIR CONDITIONING SIMPLIFIED in a new, fact-filled booklet

'Short, Short' Course in Air Conditioning Fundamentals

. . . Everything you need to know about air conditioning and how it works . . . D. C. Schaffer's condensed course in comfort air conditioning—a complete summary for **servicemen, salesmen, dealers** and others who are not engineers.

. . . Includes—The Nature of Air, Moisture • Psychrometric Chart • Fans • Air Flow Factors • Grilles • Outlets • Dampers • Distribution • Ventilation • Filtration • Sound Control • Comfort.

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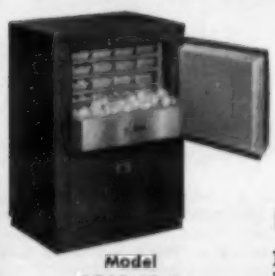
DRY BEVERAGE COOLERS MILK DISPENSERS

UPRIGHT FREEZERS BEER DISPENSERS

MEET THE BIG DEMAND FOR A LOW COST

ICE CUBE MAKER



THAT FREEZES OVER **250** CUBES EVERY FOUR HOURS

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16 quick release trays
Large storage drawer
All steel construction

Sell the ice cube maker that freezes and stores cubes for pennies per bushel. No headaches from complicated machinery when you sell KUBEMASTER to taverns—restaurants—hospitals—clubs—grocery stores or wherever there is a need for a good ice cuber.

DESIGNED, ENGINEERED AND MANUFACTURED BY

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MANUFACTURERS' AGENTS

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The market will expand 12 times in the next 2 years. We are pioneers and heat pump specialists with the broadest line in the field —nationally recognized.

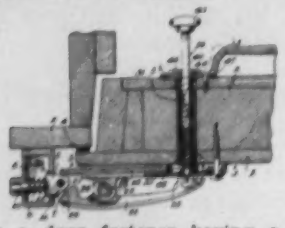
We want only top-bracket men who know the air conditioning and heating business—are technically minded—have a proven sales record in allied lines—plus a strong desire to make money. If you meet these qualifications—write us today.

TYPHOON HEAT PUMP CO.,
DIVISION OF HUPP CORPORATION
2001 GARCIA AVE. TAMPA 7, FLORIDA

PATENTS

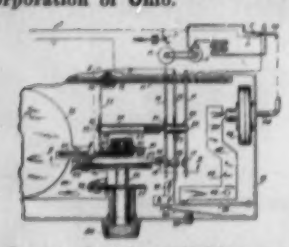
Week of January 3 (Concluded)

2,729,486. MECHANISM FOR OPERATING A REFRIGERATOR DOOR FASTENER. Winfield C. Evans, Mount Airy, Md., assignor to Jamison Cold Storage Door Co., Hagerstown, Md., a corporation of Maryland.



In a door fastener having a latch bar on the outer face of the door with which a spring projected keeper cooperates and a cam for extending and retracting said latch bar mechanism for operating said cam comprising a sleeve rigidly connected to said cam, said sleeve having a spiral slot therein, a push rod disposed in said sleeve, means for preventing rotation of the push rod, a pin fixed to said rod and engaging said spiral slot in said sleeve for rotating the sleeve when the push rod is moved endwise therein for retracting said latch bar, a spring in said sleeve for moving the rod to an initial extended position and for projecting the latch bar into engaging position with the keeper when the push rod is released by the operator.

2,729,718. AUTOMATIC DEFROSTER CONTROL SWITCHING MECHANISM. John Liebermann, Columbus, Ohio, assignor to Ranco, Inc., Columbus, Ohio, a corporation of Ohio.

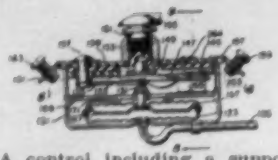


1. In an electric switching mechanism, a pair of resilient members biased in one direction and one member adapted to be biased into engagement with the other, means to releasably hold the other of said members in one position, means including a pair of cams to hold said one member from said other member, one cam having a step operative to release said one member to engage said other member held in said one position and the other cam having a step operative to cause snap movement of said one member out of contact with said other member held in said one position, thermal responsive means to actuate said first mentioned means to release said one member, and means to drive each of said cams at a predetermined rate.

2,729,719. CONTROL DEVICE. Carl G. Kronmiller, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware.

24. A control device comprising, a base, a support member mounted on and movable with respect to said base member, a first bimetal element mounted on said support member and movable therewith, control means controlled in accordance with the position of said first bimetal element with respect to said base member, a manually positionable member pivotally mounted on said base, drive means to transmit rotation of said manually positionable element to said support member, said first bimetal element and said control means constituting temperature responsive control means the control point of which is adjusted by rotation of said manually positionable member, a post extending axially through said manually positionable member and secured at its inner end to said base, indicia means including a scale means comprising indicia of temperature arcurately disposed about the pivotal axis of said manually positionable member, and an index cooperating with the indicia on said scale means, one of the above named scale and index portions of said indicia means being carried on said manually positionable member and the other being carried by said post, and a second bimetal element disposed substantially concentric of said post and cooperating with said scale means to indicate ambient temperature.

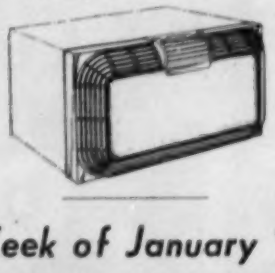
2,729,720. REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application March 22, 1952, Serial No. 278,077. 6 Claims. (Cl. 200—140.)



1. A control including a supporting structure, a control device supported by said supporting structure, a diaphragm having its central portion connected to and supported by said supporting structure, a movable substantially rigid wall connected to the peripheral portion of said diaphragm, transmitting means connecting that portion of said wall coaxially located relative to the central portion of said diaphragm with said control device, and a sealed diaphragm means having one portion operably connected to said wall and a second portion operably connected to said structure.

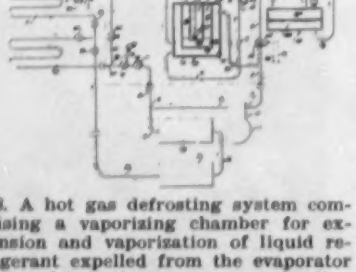
DESIGNS

176,509. ROOM COOLER. Joseph Federico, Buffalo, N. Y., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware. Application Jan. 27, 1954, Serial No. 28,696. Term of patent 7 years. (Cl. D62—4.)



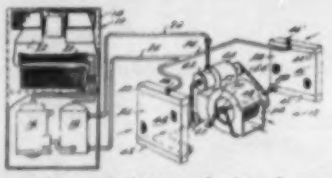
Week of January 10

2,729,950. HOT GAS DEFROSTING SYSTEM. Earl Toothman, San Francisco., Calif., assignor of one-half to Edward A. Danforth, Palo Alto, Calif. Application March 18, 1953, Serial No. 343,-108. 13 Claims. (Cl. 62—3.)



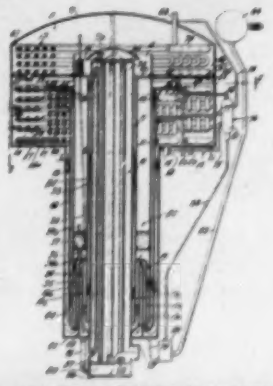
8. A hot gas defrosting system comprising a vaporizing chamber for expansion and vaporization of liquid refrigerant expelled from the evaporator of a refrigeration system, a reheating chamber for reheating cold refrigerant vapor expelled from such evaporator and for vaporizing any residue of liquid refrigerant contained in such vapor, heating means supplied with hot gas from the compressor of such refrigeration system for heating said vaporizing chamber, means communicating said heating means with said reheating chamber to conduct partly spent hot gas from said heating means to said reheating chamber to thereby heat said chamber, means for conducting vaporized refrigerant and reheated refrigerant vapor to said compressor, means for conducting cold refrigerant vapor expelled from said evaporator into said reheating chamber and means for expanding liquid refrigerant expelled from said evaporator into said liquid refrigerant chamber.

2,729,951. CONDENSER WATER COOLING DEVICE. Paul W. Wyckoff, Dayton, and Richard L. Brugler, Trotwood, Ohio, assignors to Chrysler Corp., Highland Park, Mich., a corporation of Delaware. Application Sept. 20, 1952, Serial No. 310,606. 2 Claims. (Cl. 62—117.8.)



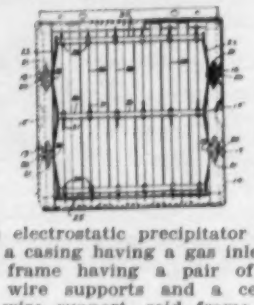
1. A heat exchange device for use with a packaged air conditioning unit having a casing with an evaporator, a compressor and a condenser which is adapted to provide a heat transfer relationship between a refrigerant and a cooling liquid mounted therein; said heat exchange device comprising a self-contained unitary assembly including a casing having first and second air handling openings, a substantially flat radiator mounted in said casing in registry with one of said openings, a motor driven blower mounted in said casings and adapted to induce a circulation of air in said first opening, over said radiator and out said second opening and pump means mounted in said casing and operable to induce a circulation of cooling liquid from the condenser through said radiator.

2,729,952. ABSORPTION REFRIGERATION APPARATUS. Eugene P. Whitlow, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application July 11, 1952, Serial No. 298,275. 28 Claims. (Cl. 62—119.)



1. A unitary refrigeration apparatus containing a working fluid and comprising a plurality of shells nested one within another from the outer shell inwardly, tranverse walls between certain of the nested shells to seal the apparatus and provide separate concentric chambers therein, heat receiving and heat rejecting elements in the chambers, and the space between adjacent shells providing passages for the flow of working fluid between chambers in said apparatus.

2,730,191. ELECTROSTATIC PRECIPITATOR. Ray W. Warburton, Medfield, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application April 1, 1954, Serial No. 420,365. 2 Claims. (Cl. 183—7.)

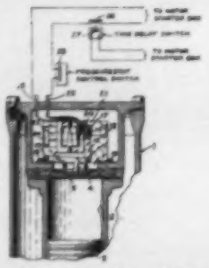


1. An electrostatic precipitator comprising a casing having a gas inlet, an ionizer frame having a pair of end ionizer wire supports and a central ionizer wire support, said frame having a pair of resilient side plates attached to the ends of said supports, said side plates between said end support having outwardly bowed portions, a first pair of insulators having their outer ends attached to one of the sides of said casing adjacent said inlet and having their inner ends attached to the outwardly bowed portions of one of said side plates, and a second pair of insulators having their outer ends attached to the opposite side of said casing adjacent said inlet and having their inner ends attached to the outwardly bowed portions of the other of said side plates.

2,730,337. HEAT EXCHANGER. Charles N. Roswell, Chicago, Ill. Application April 13, 1953, Serial No. 348,186. 14 Claims. (Cl. 257—246.)

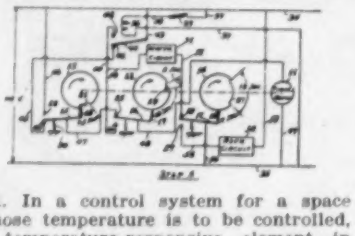
1. A heat exchanger, comprising: an outer casing having a first heat exchange medium port and a first product port adjacent to one end and a second heat exchange medium port and a second product port adjacent to the other end thereof; a heat exchange medium conduit tube removably telescopically received into said casing through said one end and having an outer wall of the tube spaced from an inner wall of the casing to provide a substantially annular product chamber, both product ports normally communicating with said chamber to direct product therethrough; releasable attaching means fastening the tube in said casing in a predetermined position; cooperating wall sections on said casing and tube directing said medium into said tube in a passage along the inner surface of said tube outer wall and between said medium ports in one general direction only from one end of the tube to the other when in contact with said outer wall inner surface; and wall sections in said casing directing said medium between said medium ports in a passage along the outer surface of said casing inner wall.

2,730,296. UNLOADER MECHANISM FOR COMPRESSORS. George W. Hartwell, Granby, Mass., assignor to Worthington Corp., Harrison, N. J., a corporation of Delaware. Application Aug. 9, 1952, Serial No. 303,621. 6 Claims. (Cl. 230—24.)



1. In an unloader mechanism for compressors the combination with a compressor having an inlet valve, of at least one unloader finger for moving said valve into open position to unload the compressor, a mechanical advantage linkage means including paired upper linkage arms and paired lower linkage arms pivotally connected to said unloader finger and for actuating said unloader finger, a resilient member in engagement with said linkage means for normally maintaining said inlet valve in the unloaded position, and an electric solenoid including a plunger operatively connected to said linkage means and resilient member for loading said compressor at a predetermined suction pressure.

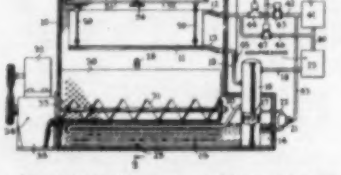
2,730,336. ELECTRICALLY CONTROLLED HEATING AND COOLING SYSTEM. George Shiers, Silver Spring, Md., assignor to American Instrument Co., Inc., Silver Spring, Md. Application April 20, 1953, Serial No. 349,309. 13 Claims. (Cl. 257—3.)



1. In a control system for a space whose temperature is to be controlled, a temperature-responsive element in said space, a timing device controlled by said temperature-responsive element, a refrigeration circuit arranged to cool said space, a heater circuit arranged to heat said space, means for energizing said refrigeration circuit responsive to a first predetermined minimum period of operation of said timing device, means for maintaining said refrigeration circuit energized through a second predetermined minimum period of operation of said timing device, and means, including said temperature-responsive element, arranged for deenergizing said refrigeration circuit and energizing said heater circuit at the end of said second predetermined minimum period of operation of said timing device, whereby the repetition rate of starting operations of the refrigeration circuit is limited to at least the repetition rate of the cycle of the timing device.

Week of January 17

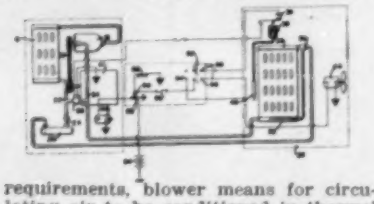
2,730,865. AUTOMATIC ICE MAKING APPARATUS. Albert L. Murdock, Durham, N. C. Application Feb. 26, 1952, Serial No. 273,379. 7 Claims. (Cl. 62—2.)



1. In automatic ice making apparatus, the combination comprising, a housing, a refrigerated hollow plate member adapted to freeze water applied to the lower outer surface of said member, a pivotally mounted linkage in the upper portion of said housing and having said hollow plate member suspended therefrom, a cold water reservoir in the bottom of said housing, pump means to apply water from said reservoir to the lower surface of said plate member, refrigerating means to cool said member, switch means engaged by said linkage for cutting off said refrigerating means upon formation of a predetermined weight of ice upon said member, and a perforate hopper within said housing below said member and above said water reservoir for collecting ice formed on said member.

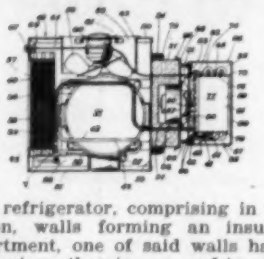
2,730,866. REFRIGERATING APPARATUS. Albert D. Baker, Kenneth L. Jones and Ernest A. Leavengood, Lansing, Mich., assignors to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application Dec. 26, 1952, Serial No. 328,118. 10 Claims.

1. In an air conditioning system for cooling and ventilating the passenger compartment of an automobile, a refrigerating system including a compressor, a condenser, a receiver, and an evaporator connected in series refrigerant flow relationship, first refrigerant flow control means comprising a pressure reducing means between said receiver and said evaporator, second refrigerant flow control means responsive to refrigeration requirements in said passenger compartment for effecting a materially reduced flow of refrigerant to said evaporator in response to a decrease in refrigeration



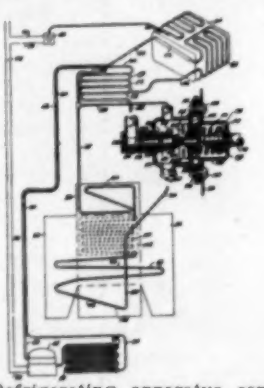
requirements, blower means for circulating air to be conditioned in thermal exchange relationship with said evaporator and thereafter into said passenger compartment, manually controlled air outlet grill means for varying the amount of air distributed to various parts of said compartment, a power source, circuit means for connecting said power source to said blower means and said second control means, said circuit means including a multiple position switch so constructed and arranged whereby in one position of said switch said blower means and said control means are both deenergized whereas in a second position of said switch the blower means only is energized and in a third position of said switch the blower means and said second control means are both energized.

2,730,867. REFRIGERATION UNIT. Ellsworth C. Salisbury, Columbus, Ohio, assignor to Mundean Mfg. Co., Columbus, Ohio, a corporation of Ohio. Application March 19, 1954, Serial No. 417,325. 10 Claims. (Cl. 62—4.)



1. A refrigerator, comprising in combination, walls forming an insulated compartment, one of said walls having an opening therein; a refrigerating unit including a cooling element and an element operatively connected with the cooling element for circulating a refrigerating medium through the cooling element, said refrigerating unit including an insulating wall interposed between said elements, said insulating wall lying in substantially the plane of said one wall and closing the opening in said one wall of the first-mentioned walls and having a recess therein on the side confronting the cooling element, the refrigerating medium circulating element being disposed outside the compartment, said cooling element being disposed within the compartment adjacent to but spaced from said wall having the opening to provide a passage for air between the cooling element and said last-mentioned wall; a fan in said space; and a motor for driving the fan, said motor having at least a part thereof extending into said recess.

2,730,868. MULTIPLE TEMPERATURE REFRIGERATING APPARATUS. Lawrence A. Phillipp, Detroit, Mich., assignor to Nash-Kelvinator Corp., Detroit, Mich., a corporation of Maryland. Original application Oct. 12, 1951, Serial No. 251,052. Divided and this application Nov. 12, 1952, Serial No. 319,882. 3 Claims. (Cl. 62—6.)



1. Refrigerating apparatus comprising, a primary cooling means, a secondary volatile refrigerant circuit having a refrigerant condensing portion in heat exchange relationship with said cooling means and having to heat absorbing portions connected in parallel, a valve responsive to pressure in said circuit interposed between the outlet of said condensing portion and the inlet of said heat absorbing portion for controlling the flow of refrigerant through said condensing portion, said circuit having a quantity of refrigerant therein of a larger liquid volume than the volumetric capacity of said condensing portion, and a conduit positioned in the secondary system between the inlet of the secondary condenser and the outlet side of said heat absorbing portion and between the inlet of said heat absorbing portion and the outlet side of said valve.

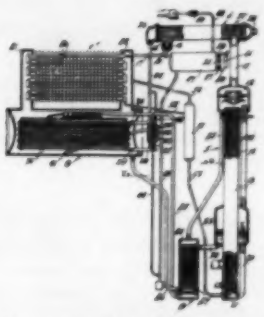
(Continued on next page)

For more information about products advertised on this page use Information Center, page 32.

PATENTS

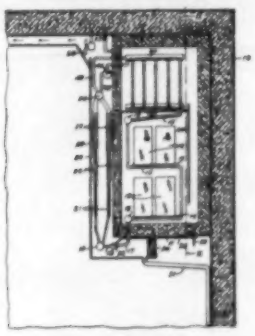
(Continued)

2,730,869. PURGING DEVICE FOR CLOSED REFRIGERATION SYSTEMS. Edward M. Stubblefield, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Jan. 8, 1952, Serial No. 265,418. 9 Claims. (Cl. 62—119.)



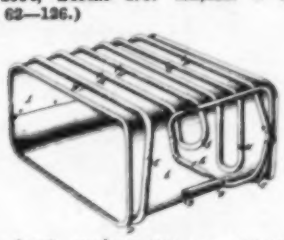
1. In a closed vacuum type heat transfer apparatus having a plurality of elements and containing a solution of water in absorbent from which water vapor is expelled by the application of heat and in which hydrogen is apt to accumulate as a foreign body which interferes with the proper operation of the apparatus, a purging device for automatically removing hydrogen from the interior of the closed apparatus comprising a wall in an element of the apparatus where hydrogen accumulates which is permeable to hydrogen and non permeable to water vapor, said hydrogen automatically diffusing through said wall from the interior to the exterior of the apparatus, and the exterior surface of said hydrogen permeable wall being so arranged as to facilitate the escape of diffused hydrogen therefrom to maintain a lower partial pressure of hydrogen in the atmosphere at the outside of the wall than the partial pressure of hydrogen in the atmosphere at the inside of said wall.

2,730,871. HEAT TRANSFER SYSTEM. Norman E. MacLean, San Francisco, Calif. Application Oct. 25, 1954, Serial No. 464,219. 3 Claims. (Cl. 62—125.)



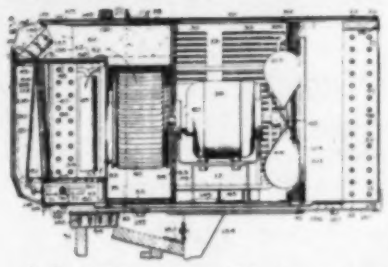
1. In a refrigeration system which comprises an enclosure for a primary refrigerant and a sealed continuous circuit for a secondary refrigerant including a condenser and a cooling unit utilizing said primary refrigerant within the enclosure and an evaporating unit outside the enclosure, the improvement which comprises two separate sets of coils forming the condenser, separate connections between the evaporating unit and each set of coils, and pump means in one of said connections to draw fluid from the evaporator and discharge toward the cooling unit.

2,730,872. EVAPORATOR INCORPORATING ACCUMULATOR WELLS AND FEED GRID. James A. Hall, Louisville, Ky., assignor to Reynolds Metals Company, Richmand, Va., a corporation of Delaware. Application May 25, 1954, Serial No. 432,230. 1 Claim. (Cl. 62—126.)



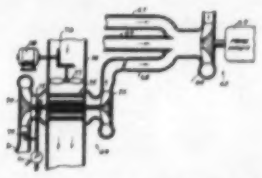
In heat exchangers, an evaporator consisting of a box-like support having an open front, a top, a bottom, and sides, of a continuous length of tubing passing back and forth across the bottom of the box in a multiplicity of turns, and also passing back and forth across the top of the box in a multiplicity of turns, the last named turns being loops at each side of the box extending downwardly in a vertical plane and contacting the sides of the box, and at least one of said loops comprising a major depending area and a plurality of the remaining loops comprising minor depending areas of lesser capacity, and an inlet and outlet for said tubing, the loop of major depending area being preceded from the inlet by a plurality of the loops of minor area and capacity, said loops constituting accumulator wells confined to vertical planes.

2,730,873. ROOM AIR CONDITIONERS. Hubert W. Hardin and Clinton C. Brinkoeter, San Antonio, Texas., assignors to Ed Friedrich, Inc., San Antonio, Texas, a corporation of Texas. Application May 19, 1953, Serial No. 355,928. 14 Claims. (Cl. 62—129.)



1. In a room air conditioning unit, a casing having openings at the ends thereof, a condenser mounted in said casing and disposed at one of said open ends, a removable hood consisting of a front, top and side walls mounted on said casing and extending over the other open end thereof, a housing mounted in said casing at said last mentioned open end, comprising a back wall having a shelf and a cold air deck extending laterally therefrom and arranged in spaced relation to each other, a turbine cage connected to said back wall, an air intake opening in said back wall between said deck and shelf for communication with said turbine cage, a turbine in said turbine cage, an evaporator mounted on said shelf extending across said opening and beneath said cold air deck being operatively connected to said condenser, said cold air deck having engagement with the front wall of said hood, a bulkhead provided along the rear of said cold air deck and said turbine cage, said turbine cage having an air outlet opening for delivering cold air onto said deck, said hood having an air outlet at the peripheral edge thereof through which air is discharged from said cold air deck, said casing and said front wall of said hood being spaced from each other at the bottoms thereof to provide an air intake opening.

2,730,874. AIR CONDITIONER EMPLOYING AN EXPANSION EVAPORATION AIR CYCLE. Helmut R. Schelp, Dayton, Ohio, assignor to The Garrett Corp., a corporation of California. Application Oct. 14, 1949, Serial No. 121,436. 14 Claims. (Cl. 62—138.) (Granted under Title 35, U. S. Code (1952), sec. 266.)



1. In an air cycle air conditioning system, an expansion turbine including an air inlet for working air at atmospheric pressure and an air outlet to discharge said working air at a reduced temperature and at a pressure below atmosphere after passing through said expansion turbine, nozzle means for introducing a fine spray of water into the working air before its entry into said expansion turbine for evaporative cooling of said working air, a heat exchanger connected to said air outlet and providing a path for said working air after leaving said expansion turbine, a first suction blower for maintaining said working air at a pressure below atmosphere between said expansion turbine and said first suction blower and including an air inlet for the working air leaving said heat exchanger and an air discharge outlet, duct means extending from said air discharge outlet to a central power plant, a second suction blower included in said central power plant and connected to said duct means to maintain said working air at a pressure below atmosphere between said first suction blower and said second suction blower but at a pressure higher than that maintained between said expansion turbine and said first suction blower, means to regulate the flow of water through said nozzle means whereby the moisture content of the working ai rissuing from said second suction blower into the atmosphere is capable of regulation to obtain total saturation, duct means to conduct conditioning air through said heat exchanger along a path separate from the working air path but in heat exchange relation with respect thereto, and means to maintain a flow of said conditioning air.

2,730,948. COMBINATION LUMINOUS CEILING AND AIR CONDITIONING SYSTEM. Carl M. F. Peterson, Arlington, Mass., by mesne assignments, to The Wakefield Co., Vermilion, Ohio, a corporation of Ohio. Application June 29, 1951, Serial No. 234,250. 3 Claims. (Cl. 98—40.)

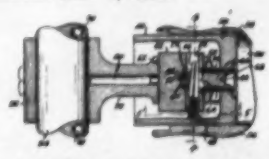
1. In a room space having a ceiling, the combination of a subceiling structure spaced beneath the room ceiling and comprising alternate series of relatively wide transversely corrugated panels, and relatively narrow elongated panel support members upon which opposite marginal edges of said panels laterally rest, said members being of inverted generally T-shaped cross-section providing upwardly extending

webs and opposite lateral flanges respectively disposed between and underlying the marginal edges of successive panels, said webs being formed with laterally offset portions which serve to space the corrugated edges of successive panels from each other and from the webs therebetween to thus form with the corrugated marginal edges paired series of air flow passages longitudinally along said panel support members, and means for creating an air pressure differential between the spaces above and below said subceiling structure for thereby inducing flow of air through said paired series of passages.

2,731,230. VALVE STRUCTURE. Paul Schell, Elkhardt, Ind., assignor to Penn Controls, Inc., Goshen, Ind., a corporation of Indiana. Application Jan. 12, 1952, Serial No. 266,197. 2 Claims. (Cl. 251—11.)

1. In a valve structure, a valve element movable to either of two positions and biased to one of said positions, means for imparting snap action to said valve element when moving to either of said positions, and means to move said valve elements to the other of said positions, means for moving said valve operating element to one of said positions comprising a bimetal element normally in one position, a heater therefore to move it to another position, an operative connection between said bimetal element and said valve element, and means for manually resetting said valve to said other of said positions comprising a movable element normally in one position and cooperable with said bimetal element when operated manually to move it to said another position, said bimetal element having a projection to retain said movable element when operated manually, said heating element upon warping said bimeal element beyond said another position removing said projection from cooperation with said movable element to permit it to return to its normal position.

2,731,314. REFRIGERATING APPARATUS. Ralph W. Doeg, Detroit, Mich., assignor to Nash-Kelvinator Corp., Detroit, Mich., a corporation of Maryland. Application Oct. 5, 1953.



1. In a compressor, a connecting rod having a bifurcated end intersected by a transvers bore, a wrist pin rotatable in said rod bore, said wrist pin having a bore therein extending longitudinally of the wrist pin axis, a piston having a skirt, an extension member on said piston surrounded by said skirt, said extension member received by the bifurcated end of said rod and intersecting said wrist pin core, said extension member having a transverse opening registering with said wrist pin bore, a tapered pin extending through said opening and wrist pin bore, and a spring having one end within said wrist pin engaging said tapered pin and other end projecting from said wrist pin engaging the inner wall surface of said piston skirt urging said tapered pin against and holding said extension member and said wrist pin together.

Westinghouse Names Trans-State Supply

DALLAS — Trans-State Supply Co. located at 425 South Field, a newly formed wholesale firm, has been appointed wholesaler for the north Texas area for Westinghouse Electric Corp. packaged air conditioning equipment.

The firm is under the management of Ken Wallace, who was formerly in the contracting business.

Wallace said his firm will not contract but will limit its business to sales and service help to dealers franchised in an area from Temple north to the Red River and from Mineral Wells eastward to the state line.

G-E Ups Factory Prices on Its '57 Washers and Dryers

LOUISVILLE, Ky. — Factory prices on its 1957 line of automatic washers and dryers are being raised an average of 8%, it was announced recently by the major appliance division of General Electric Co.

Halbert B. Miller, home laundry division general manager, said increased material costs and the addition of new features in the 1957 line made the price boost necessary.

Miller said he didn't know what effect the price increase would have on retail prices. He pointed out that retail prices on G-E major appliances are determined by distributors and dealers and depend partly on local market conditions.

Deep South Supply Names F. M. Smith

ATLANTA—Frank M. Smith, Jr. has been named controller of Deep South Supply Co., according to Roscoe Walker, president of the new distributing Company.

Before accepting the new position, Smith was treasurer of Georgia Appliance.

Frigidaire Files Claim For Excise Tax Refund On Co-op Ad Expenses

WASHINGTON, D. C.—Frigidaire Div., General Motors Corp., has filed suit in the U. S. Court of Claims for a $787,631 manufacturers' excise tax refund based on cooperative advertising expenditures.

The amount of the refund sought is based on the $8,663,948 the company returned to distributors between Aug. 1, 1948, and May 31, 1951, to compensate them for funds spent in advertising Frigidaire electrical appliances.

The expenditures involve (1) sums returned to distributors to pay for advertising they placed and (2) sums to reimburse them for payments made to dealers who advertised Frigidaire products on a cooperative advertising basis.

It is believed that if the Claims Court rules in favor of GM, other manufacturers probably will file similar suits, as they did after GM won a suit filed in the same court a few years ago. In the latter case, the court ruled that the company was entitled to excise tax refunds on its warranty expenditures.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications $10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS AVAILABLE

ENGINEER TO teach refrigeration and air conditioning in a Technical Institute, Northern New York state. Good salary, paid vacations, excellent retirement plan. Position available immediately. AGRICULTURAL and TECHNICAL INSTITUTE, Canton, New York.

BLAST FREEZE distributors in many areas need additional sales personnel to assist food stores in entering the profitable freezer provisioning field. Give us your background in confidence. We will assist you, if possible, in locating an opening with real opportunity. Address Robert B. Ayres, President, BLAST FREEZE CORPORATION, 10 Main Street, Park Ridge, Illinois, Mark: Confidential.

BLAST FREEZE is expanding: We need field representatives on the West Coast, Southwestern area and Southeast, to work with exclusive distributors in major market areas. Also, for Los Angeles, Chicago and New York, factory branch direct sales representatives needed. Let us hear from you—we will be happy to discuss it with you. BLAST FREEZE CORPORATION, 10 Main Street, Park Ridge, Illinois.

MANUFACTURER'S REPRESENTATIVE to sell special items of commercial refrigeration, which will be fill in items for established dealers. Territory, Michigan, Indiana, Midwestern or Southwestern states. THE C. SCHMIDT COMPANY, 1712 John Street, Cincinnati 14, Ohio.

AIR CONDITIONING expert—Live in sunny Southern California. Permanent employment for man capable of service, start and test and check out of air conditioning systems. Ideal working conditions. Live in Long Beach and work the year around for well established, growing air conditioning firm. Foreman's wages with advancement. Health and accident insurance and vacation fund paid by employer. Write BOX A5556, Air Conditioning & Refrigeration News, stating experience, qualifications and earliest starting date.

EQUIPMENT FOR SALE

ARCTICAIRE AIR conditioning equipment 2, 3 and 5 ton packaged water chillers, air or water cooled. Direct expansion air conditioning systems 2, 3 and 5 ton, air or water cooled, self contained and remote types. Write for literature and prices. ARCCO, MANUFACTURERS AGENTS, INC., Merchandise Mart Bldg., 2201 Grand Avenue, Kansas City, Missouri.

NEW SELF contained Kesco automatic condensate water disposal pumps for air conditioners ice cube bins; at your local wholesaler. Available in 10 and 20 foot heads.
NEW YORK, Abco Refrigeration, 1615 Second Ave.
MT. VERNON, Eastern Supply 521 East Third Street
SYRACUSE, Gould-Farmer Co., 1020 W. Genesee Street
WHITE PLAINS, County Seat, 111 Central Ave.
NEWARK, N. J., Tesco Distributors 78 Boston Street
DAYTON, OHIO, W. H. Kiefaber Co., Refrigeration Dept.
SACRAMENTO, CALIF., Associated Refrigeration, 1717 Eye Street
SEATTLE, WASH., Refrigerative Supply, 204 W. Republican
TAMPA, FLORIDA, Leo S. Bosage Co., 1546 Franklin Street
HIGHLAND PARK, MICH., J. M. Oberc, Inc., 55 Oakman Blvd.
Distributors write to KESCO PRODUCTS CORP., Springfield Gardens 13, N. Y. for sample pump and literature.

BUSINESS OPPORTUNITIES

AIR CONDITIONING, heating, refrigeration contracting with metal shop located in progressive southeastern seaport city, 200,000 population. Good franchises, good reputation, good profit level past ten years'. Owner wishes to retire, sell for inventory and equipment, lease bldg. Owner will remain with business on salary until purchaser becomes established. BOX A5554, Air Conditioning & Refrigeration News.

FRANCHISES WANTED

ESTABLISHED DISTRIBUTORSHIP for mechanical equipment with thirty dealers in West Texas and New Mexico wants additional products on an exclusive basis. Territory regularly covered by competent sales engineers. BOX A5553, Air Conditioning & Refrigeration News.

MISCELLANEOUS

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR; 2833 Lincoln Avenue, Chicago 13, Illinois.

Heat Wave Booms Industry Sales--

(Concluded from Page 1, Col. 5)

plenty of units, except in certain models.

He commented that he bought "specials" only. Even small quantity discounts on major brands would cost him "within dollars" of his retail prices, which he feels are "right" to meet discount house competition.

Both stores found 7½ amp. units selling well.

Refrigerators, Too

The hot spell was expected to boom sales of household and commercial refrigeration systems as it always does, because it brings to people's minds the need for refrigeration, and speeds the breakdown of antiquated and inadequate equipment.

However, the hot spell which hit suddenly again pointed up the problems which have served to plague the air conditioning business ever since it started to attain a sizable volume of business. A top executive of a major company put it this way:

"The jam-up in calls for installation of air conditioning since the heat wave has started shows that we still haven't licked our two major problems:

Not Enough Installers

"1. We haven't done enough to make air conditioning a year-round or 12-month business. We improved a lot this year, many of our dealers were operating at top capacity in April and May, but we still didn't convince enough prospects not only to buy early, but to install early.

"2. The present situation has demonstrated that we don't have enough qualified installation dealers and contractors in the business. Sometimes it seems as though more new manufacturers have entered the business in the past couple of years than new dealers and contractors. I think it's quite possible that the industry's sales of central residential and commercial packaged systems might have gone 50% greater than they will this year if enough qualified firms had been doing the sales job."

Early Season Sales Up

Despite cool weather in the north central and eastern parts of the country through May, the air conditioning sales picture has been generally good. Here's a few indicators:

The George L. Johnston Co., a major distributor and contractor in the Detroit area, where the weather was as bad this Spring as any place in the country, reported that it had sold more commercial air conditioning jobs by the end of May than it had in all of 1955.

Emerson Radio & Phonograph Corp.'s President Benjamin Abrams said that sales of its room air conditioners thus far are 81.2% ahead of last year.

A survey of air conditioner distributors in Milwaukee showed sales thus far this year running 50 to 80% ahead of 1955.

On the basis of over-all figures the whole air conditioning picture has been looking good. In room air conditioners, distributor shipments to retailers in the first four months were reportedly up 20% over the same period in 1955. George S. Jones, Jr., managing director of the Air-Conditioning & Refrigeration Institute, reports that manufacturers confidently expect retail sales of room units to go over the 1,500,000 mark this year.

Tecumseh Reports Gain

Tecumseh Products Co., which lays claim to making more refrigerating units for room air conditioners than any other company, said that its sales of compressors for such applications from September, 1955 to June of this year are 10% ahead of the figure for the period in the previous 12 months.

Latest predictions from authoritative sources on residential complete home cooling systems (as reported in the June 4 issue) set the predicted total to be installed in 1956 at 200,000, as compared with 130,000 in the previous calendar year.

Packaged commercial air conditioners were also said to be running ahead of 1955 figures. Automobile air conditioner sales were running behind hoped-for increases, but only because total new car sales were lagging. The percentage of new cars being equipped with air conditioners was said to be increasing.

Hilton To Build Conditioned 800-Room Hotel In Pittsburgh

PITTSBURGH—Hilton Hotels Corp. announced plans for a $15 million, completely air conditioned, 800-room hotel in downtown Pittsburgh's Gateway Center development.

Construction of the 17-story Pittsburgh Hilton is expected to start within six months. It should be ready for occupancy for the city's bi-centennial in 1958-59, according to Conrad N. Hilton, president of Hilton Hotels.

Georgia Court Will Be Cool After Hot Fire

DOUGLASVILLE, Ga. — The Douglas County courthouse, destroyed in a spectacular fire in January, is going to be replaced by a modern, new air conditioned structure, it was announced by A. G. Meadows, chairman of the Douglas County board of commissioners recently.

The new courthouse building is scheduled to be completed by the fall of 1957. Plans are being prepared by Southern Engineering Co.

Plan Church Cooling

MALAKOFF, Texas — Contract for the construction of a new air conditioned building for the First Methodist Church here has been awarded to C. L. Hendrick & Sons, of Waco, Texas.

Morley To Distribute RCA-Whirlpool Line

ST. JOSEPH, Mich.—Morley Brothers, Saginaw, Mich. has been appointed distributor of "RCA Estate" ranges and "RCA Whirlpool" air conditioners in the Saginaw and Lansing territories, it was announced recently by Jack Sparks, general sales manager, distribution, Whirlpool-Seeger Corp.

The new range and air conditioner distributor, which has a Lansing branch, replaces Carson Distributors, Inc., in both territories.

Morley Brothers is headed by R. C. Morley, board chairman; R. C. Morley, Jr., president; E. B. Morley, vice president; Burrows Morley, treasurer; and W. A. Dewar, secretary. The company continues as distributor of RCA Whirlpool home laundry equipment and freezers.

THE NEW UNARCO DYNA-PAC

...FEATURING BOTH ECONOMY AND EFFICIENT LONG LIFE

- 2-, 3-, 5-ton capacities in water-cooled or air-cooled models
- For residential and commercial installations
- Selective manual humidity control
- Built-in plenum
- 4-way adjustable top air discharge on free blow models

The all-new UNARCO Dyna-Pac meets the challenge of better air conditioning at lower cost. What's more, it was designed with the installing contractor in mind. All Dyna-Pac units are pre-wired and pre-piped for easy, low-cost installation.

There is economy in both the low initial cost and minimum maintenance required. There is also economy of space with the compactly designed DYNA-PAC. Duct models can be attached to existing warm air heating systems to provide year 'round conditioning.

Write Dept. AC-105 for full information, including catalog and prices.

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332 South Michigan Avenue, Chicago 4, Illinois

The Royal-Aire—by UNARCO—representing the ultimate in packaged air conditioning equipment. Available in 5 models, 3 through 15 h.p.

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